3D environment lighting

Sunny Afternoon - Twilight - Moonlight - Electrical - Candlelight - Underwater

3D Environment lighting

‘3D Environment Lighting’ is a 6-part tutorial series. Over the course of the six chapters, this series will be detailing techniques on lighting an environment under a number of different conditions. Each chapter we will cover a step-by-step guide to setting up lights, aimed DW SRUWUD\LQJ WKH VFHQH LQ D 7KH YDULRXV FKDSWHUV ZLOO EH WDLORUHG WR VSHFL¿F software packages and each will aim to show a comprehensive and effective way of lighting an interior of a ship that includes both natural DQG DUWL¿FLDO OLJKW 7KHVH ZL afternoon, sunset, moonlight, electric light, FDQGOH OLJKW DQG ¿QDOO\ D VXE light. The schedule is as follows:

Chapter 01

Natural Exterior Lighting

Sunny Afternoon

Chapter 02

Natural Exterior Lighting

Twilight

Chapter 03

Natural Exterior Lighting

Moonlight

Chapter 04

Artificial Interior Lighting

Electrical

Chapter 05

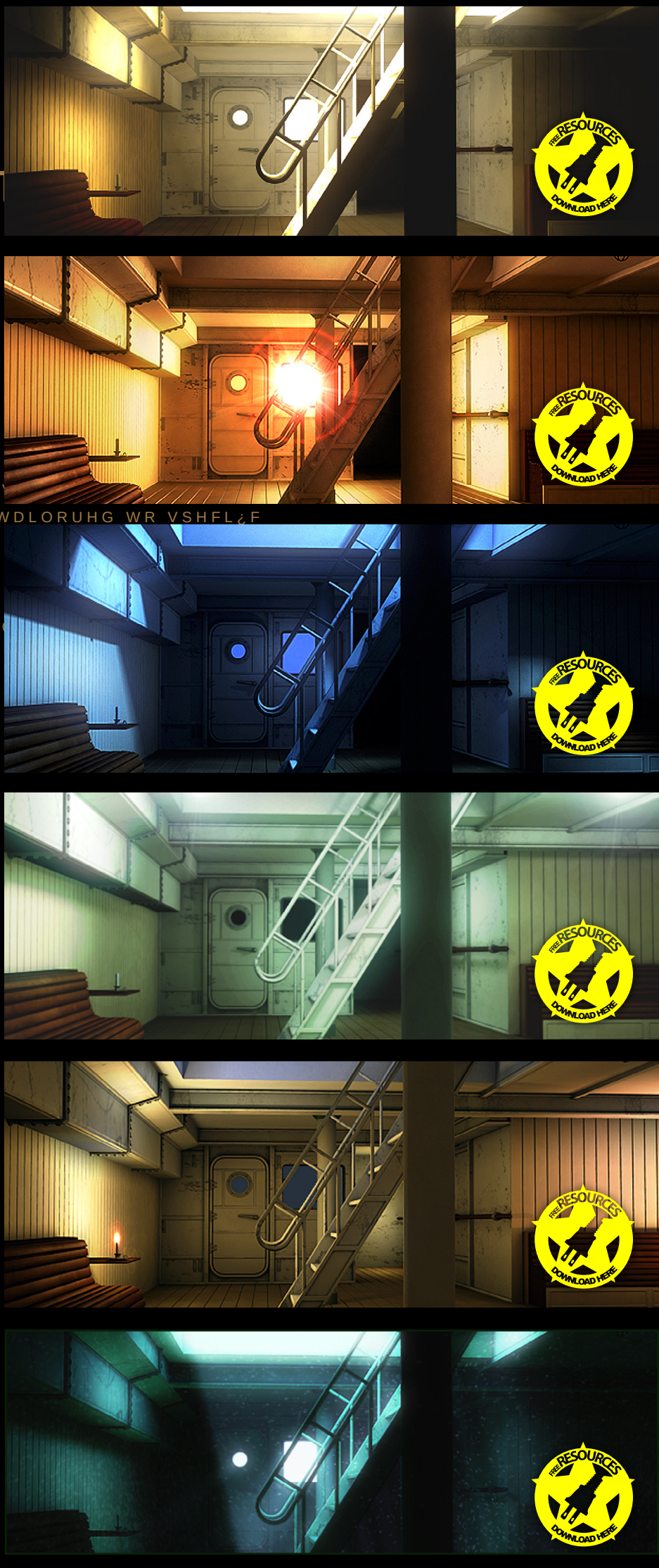
Artificial Interior Lighting

Candlelight

Chapter 06

Artificial Interior Lighting

Underwater



Chapter 01

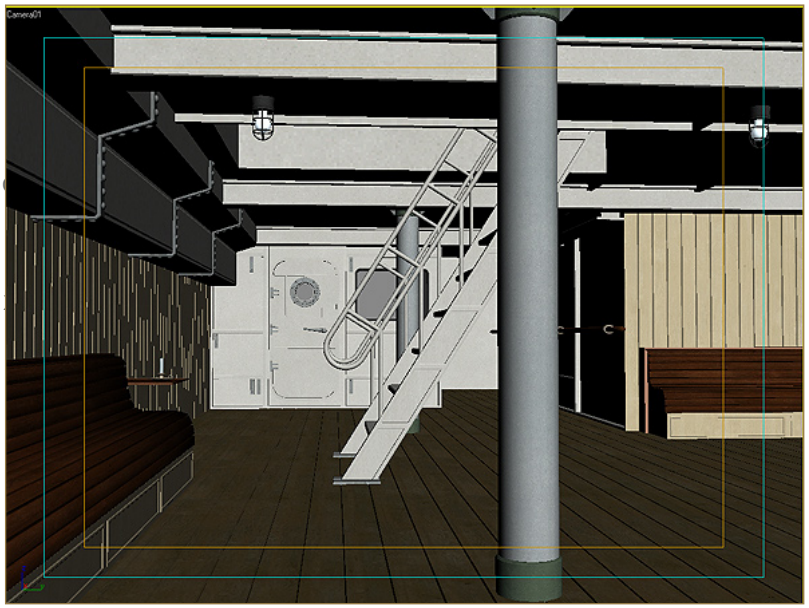
Natural Exterior Lighting
Sunny Afternoon

3ds max

NATURAL EXTERIOR LIGHTING SUNNY AFTERNOON

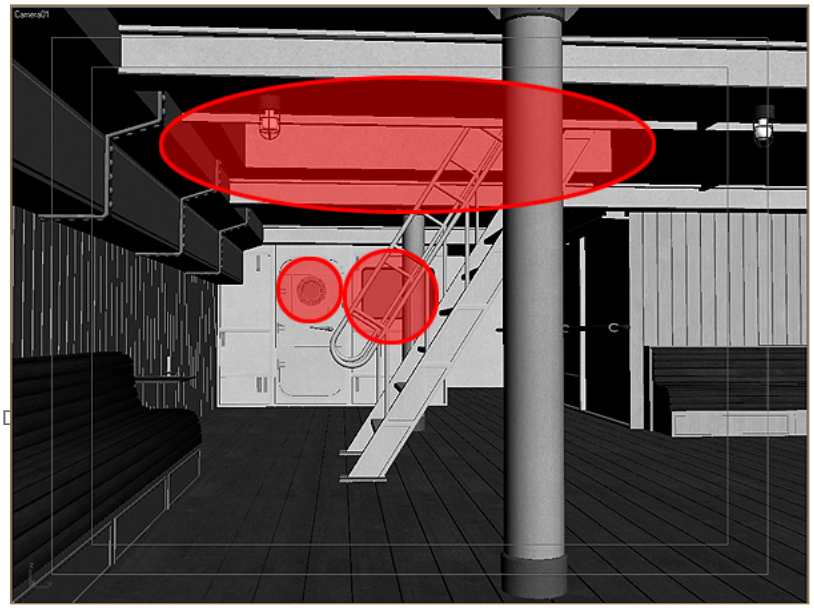
:HOFRPH WR WKH ¿UVW SDUW RI WKLV
tutorials. This chapter, we'll take a look at how to set up "sunny afternoon" lighting for our 3D
HQYLURQPHQW %HIRUH ZH VWDUW , V
some good reference material for our project. In Google, simply Search Images for "sunny afternoon" to discover some pictures which will give you an idea as to how light behaves at this time of the day. Even better, why not just go outside and examine how the light is behaving in the real world? ...

Fig 01



1. Let's start by taking a look at our scene. Open the Ship Cabin_Part1_Starting.max scene (download can be found at the end of this tutorial; click on the Free Resources logo) (Fig01).

Fig 02



2. Examining the 3D scene, we can see that there are three main light sources (Fig02); the large opening in the ceiling, the small circular window, and the rectangular window on the
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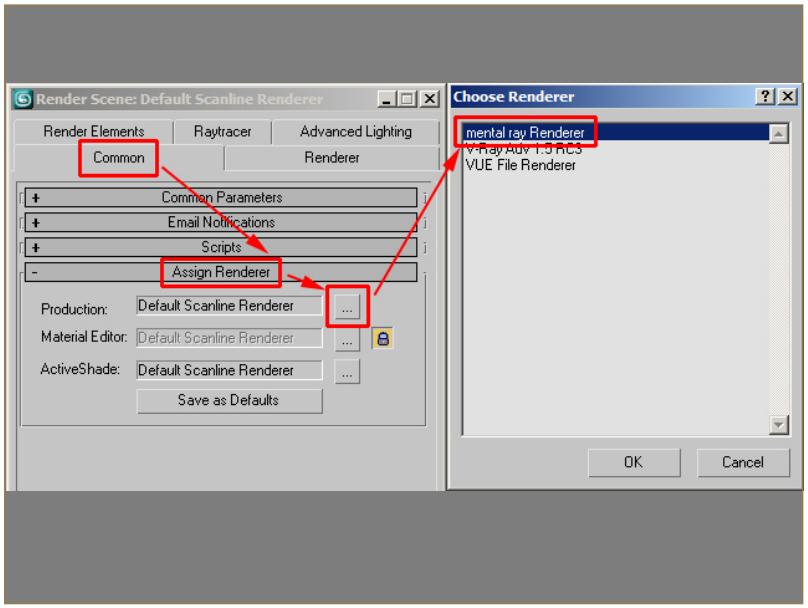
in the scene for this part, as this will be covered in following parts of the tutorial.

3. We will use the Mental Ray renderer for our scene, so let's start by activating it before we get to work on the lighting in our scene. Open the Rendering panel (use the F10 short-cut key), scroll down into the Common tab, and click on the button with the three dots in the Assign Renderer roll-out menu. A browser window will open; select Mental Ray Renderer and click the OK button (Fig03).

Fig 03



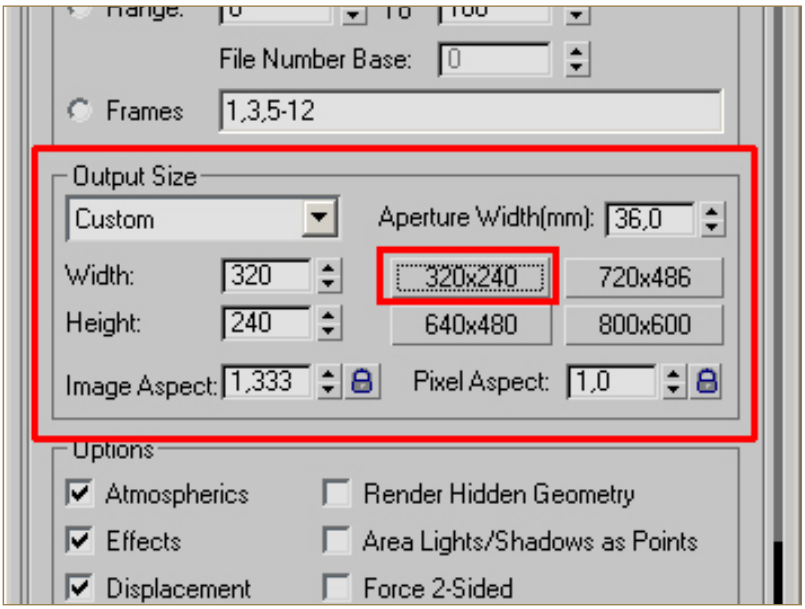


Fig 04

4. Since we'll be doing a lot of rendering tests in this project, we can't wait too long for each render. We therefore need faster feedback to make any adjustments and changes. So let's set the rendering size to 320 x 240 - this way it will render faster. We'll increase the resolution RQO\ IRU WKH ¿QDO UHQGHUV 2S panel again and set the Output Size to 320 x 240 (Fig04).

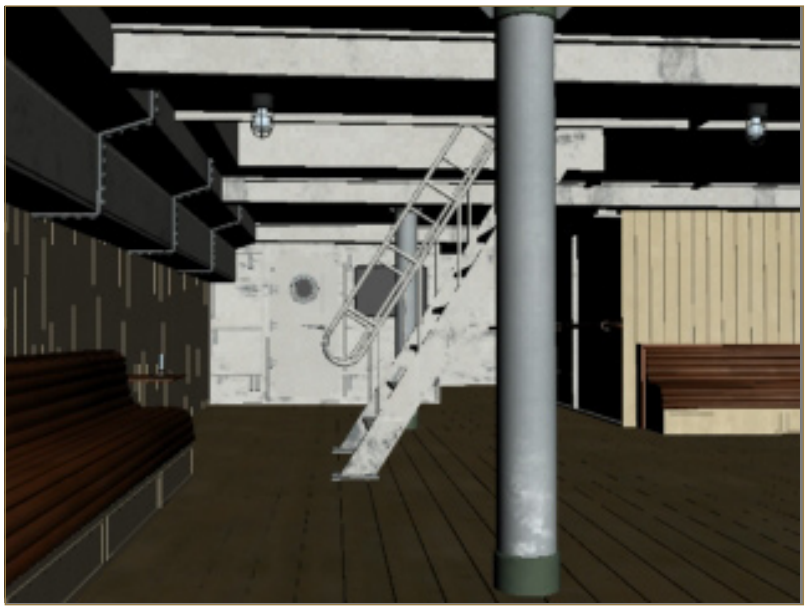


Fig 05

5. If we render the scene now, we'll see just the default lighting since there are currently no lights in the scene (Fig05).

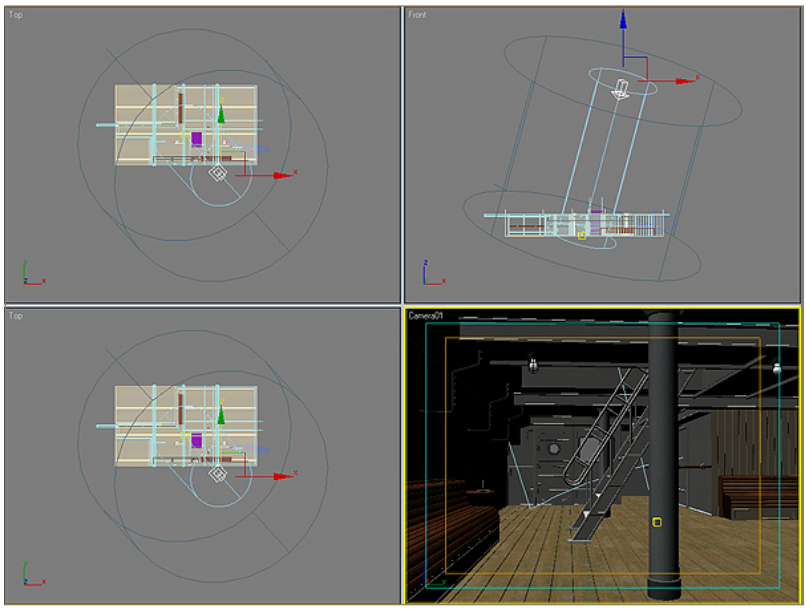
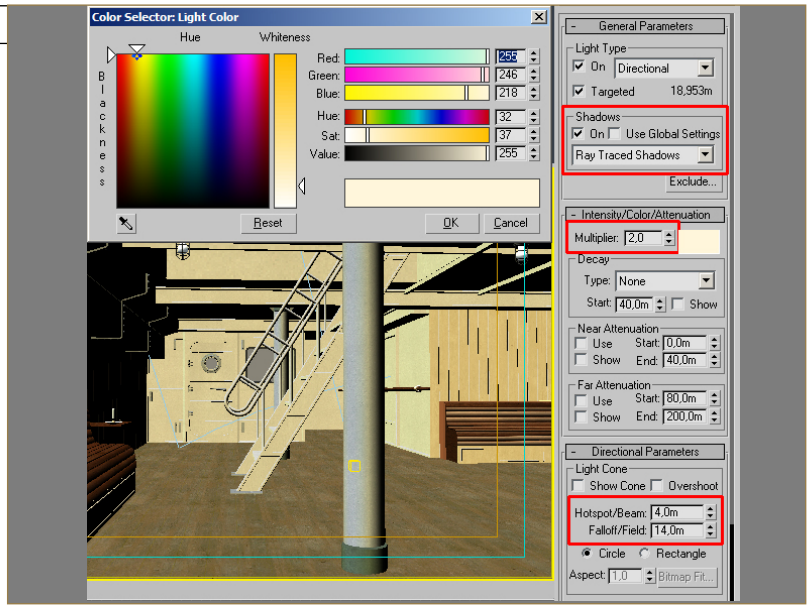


Fig 06

6. Create a Target Direct light and position it as shown in Fig06.

7. Enable Shadows and set its type to Ray Traced Shadows. Set the light Multiplier to 2 and change the colour to something like R=255, G=246, B=218. You will also need to copy the parameters for Hotspot and Falloff from those detailed in Fig07.

Fig 07

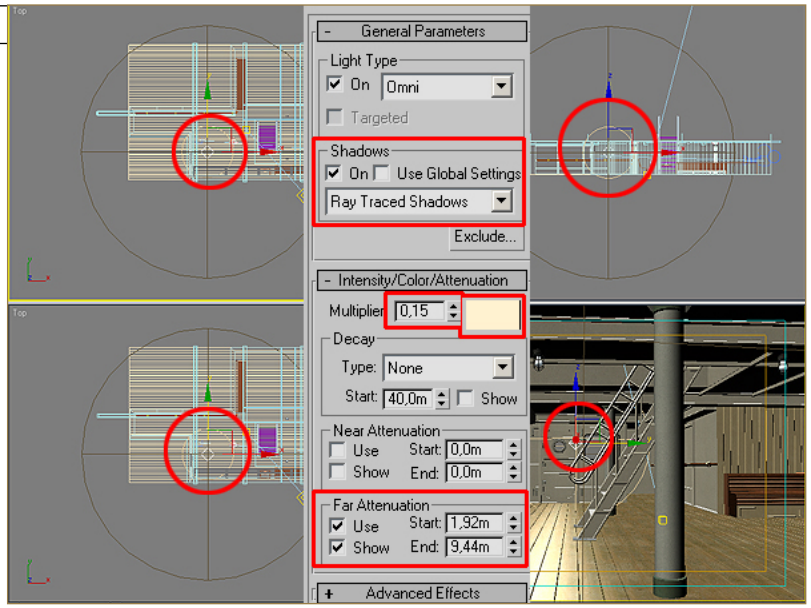


8. Render the scene again (Fig08). Now we can see our main light source (the Sun) coming from above and casting shadows into the ship's cabin. The scene is almost totally black, so we need to create at least one other light source coming in from the two windows on the back wall.

Fig 08

9. Create an Omni light and position it as shown in Fig09, right between the two windows. Make sure that the light is inside the cabin, as we need it to light that area slightly. Set the Multiplier to a low value, like 0.15, and its colour to R=255, G=242, R=208. Make it cast Ray Traced shadows and enable the Use and Show options for the Far Attenuation. Also, set the Start to 1,92 and the End to 9,44.

Fig 09



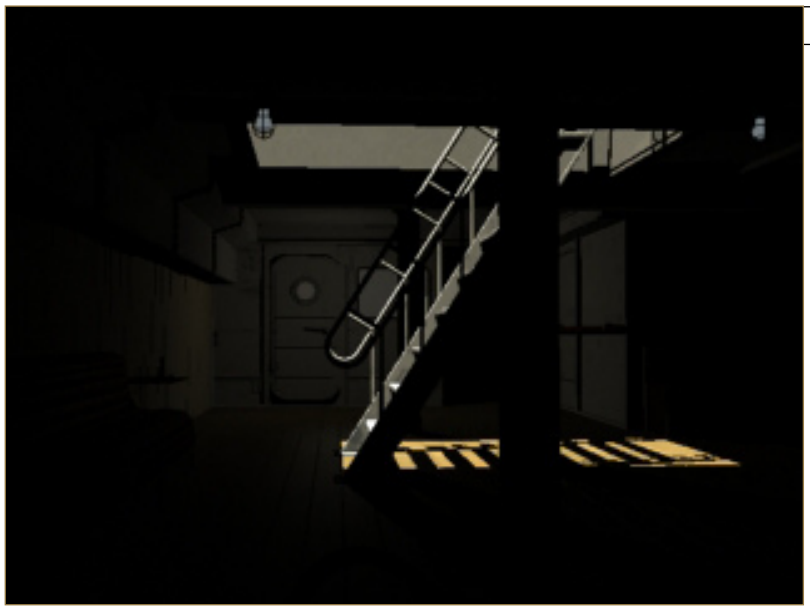


Fig 10

10. Render the scene again (Fig10). Now there is much more light, especially at the back of the cabin, but the scene is still way too dark. We need some bounces of light over the entire scene.

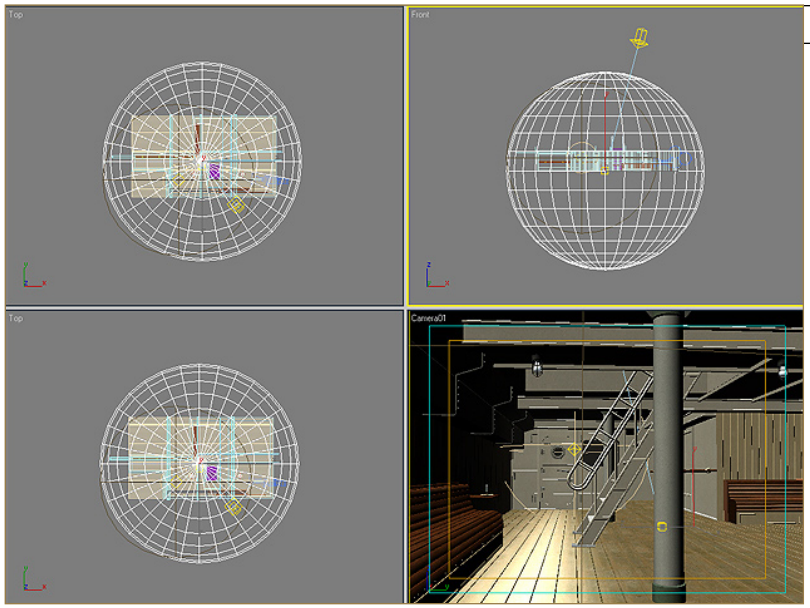


Fig 11

11. Create a sphere that surrounds the whole scene (Fig11).

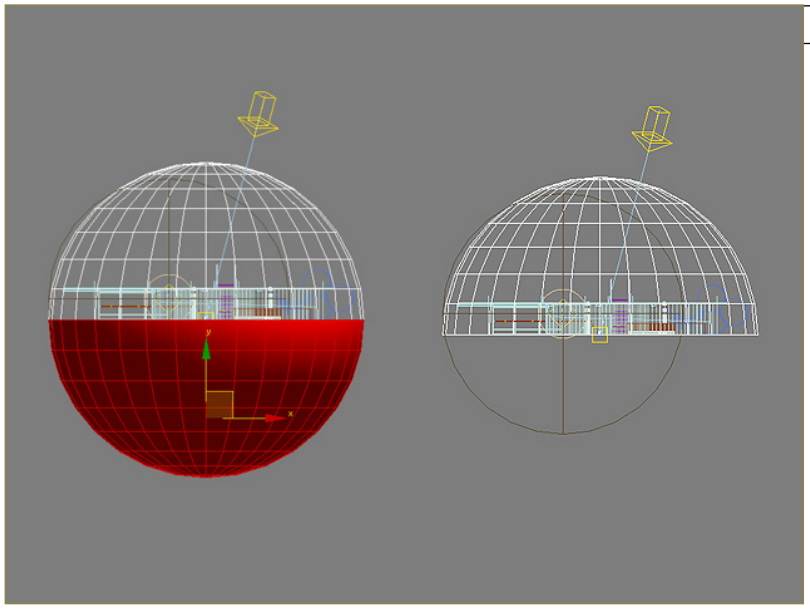


Fig 12

12. Make the sphere an Editable Poly object, and then select the lower half's polygons and delete them (Fig.12).

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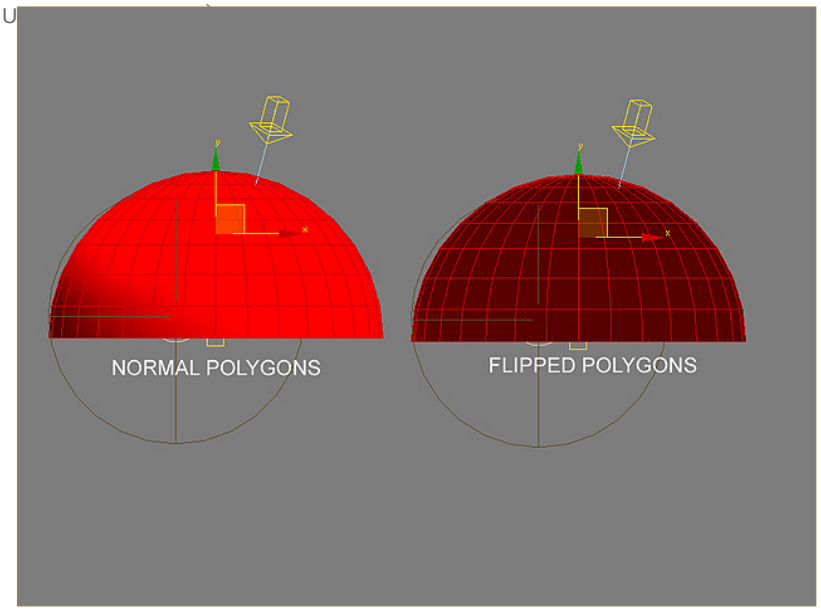
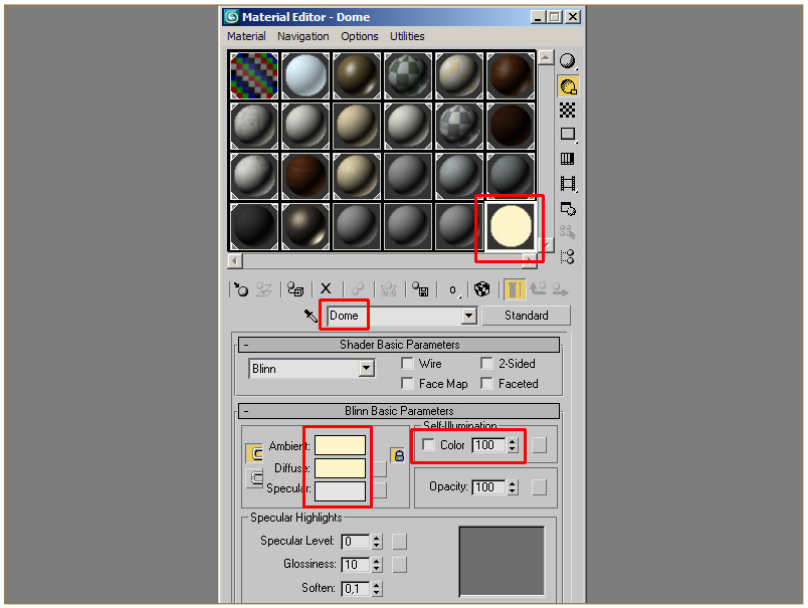
them using the Flip command in the Command Panel (Fig13). We'll assign a self-illuminated material to the sphere, so we need its polygon to point inwards.

Fig 13



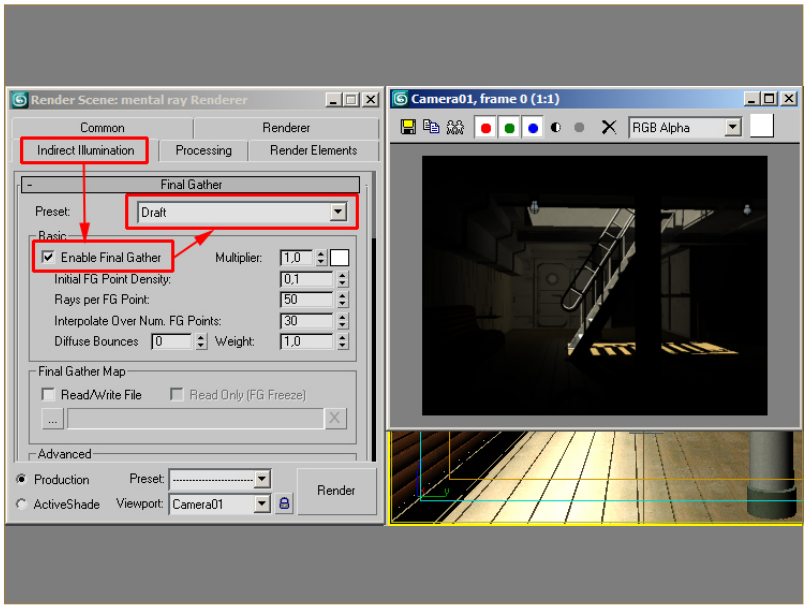
14. Open the Material Editor and create a new Standard material. Name it "Dome" and change its Diffuse colour to something like R=255, G=245, B=203 (Fig14). Also, set its Self-Illumination value to 100 (Fig14).

Fig 14



15. Open the Rendering panel and switch to the Indirect Illumination tab and enable Final Gather. Set the Preset to Draft and render the scene. This time the render will take a little longer, since we enabled the Final Gather feature of Mental Ray. This option takes care of the secondary bounces of light, or indirect illumination. We have some more bounces of light in the scene, but it's still too dark (Fig15).

Fig 15



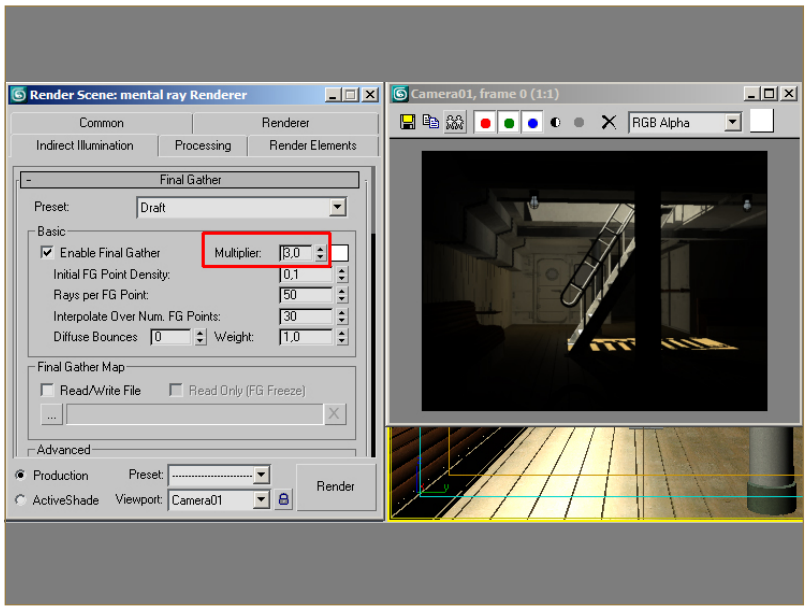


Fig 16

16. Set the Final Gather Multiplier to 3 and render again. Now we have some more light, but we need to tweak the FG parameters a little (Fig16).

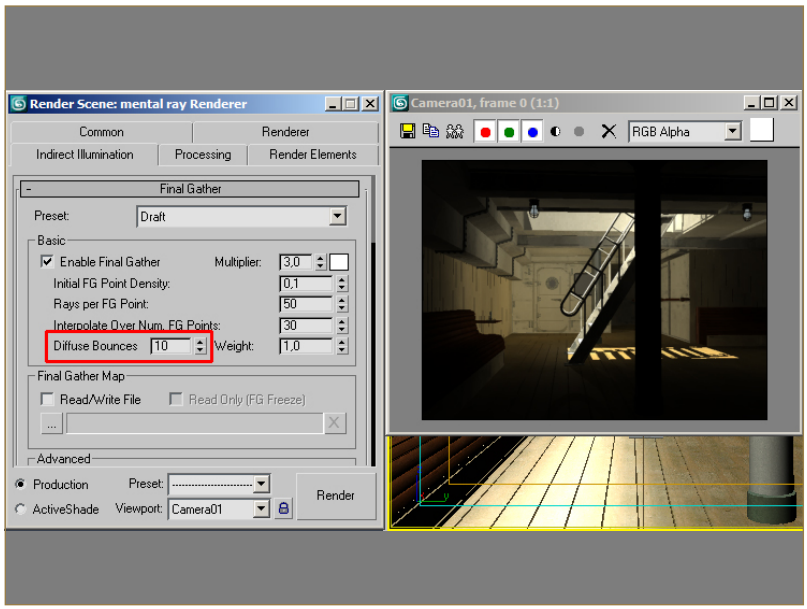


Fig 17

17. Set the Diffuse Bounces to 10 and render again. Now there's a fair amount of light in the cabin, and we start to see objects that were much too dark before, like the seat on the left (Fig17).

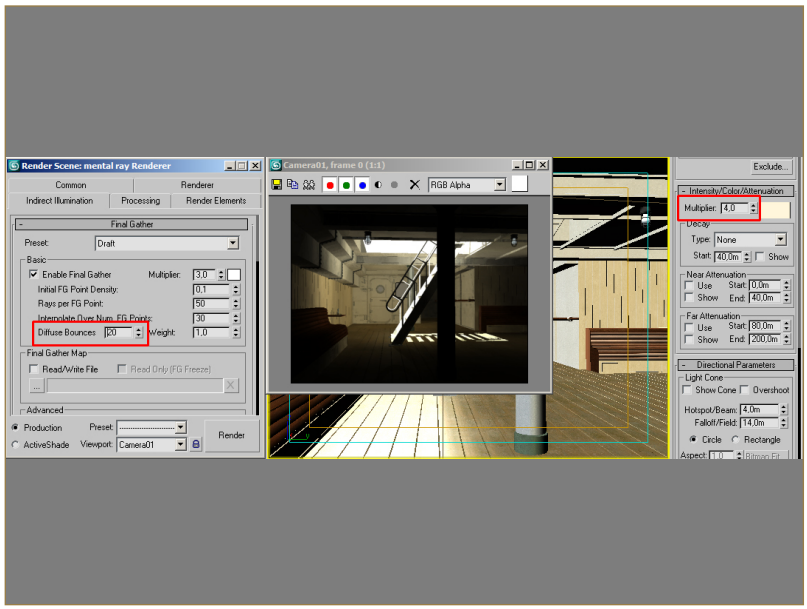
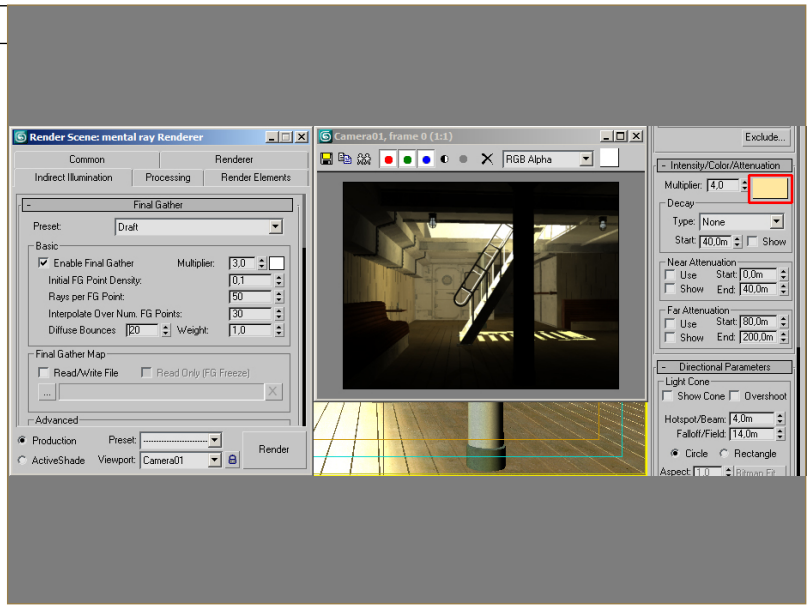


Fig 18

18. Set the Diffuse Bounces to 20 and increase the Direct Target light's Multiplier to 4. Render the scene again (Fig18).

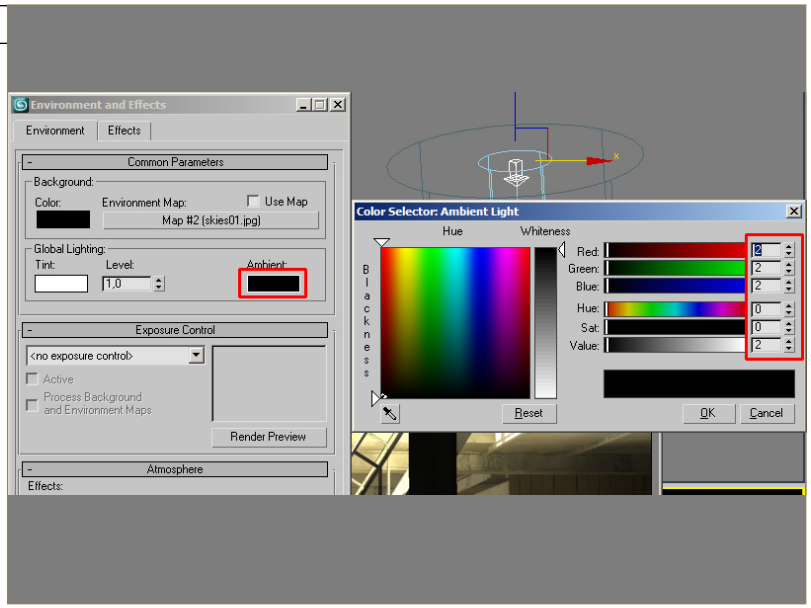
19. Since we increased the light's Multiplier, it is now "over-burning" the areas where it directly hits the surfaces. So let's change the light's colour to something warmer and more saturated, like R=255, G=231, B=159. Also, make sure that H=32, S=96, and V=255. Render the scene again. Now it looks better (Fig19).

Fig 19



20. To add another little bit of light, we can add some value to the Ambient light. Open the Rendering/Environment tab and set the Ambient value to a very dark colour, as shown in Fig20. The brighter this value, the more over-exposed the rendering will be, so do not exaggerate the effect.

Fig 20



21. Now we can start making some test renders with a higher resolution. Set it back to 640 x 480 and render the scene (Fig20).

Fig 21

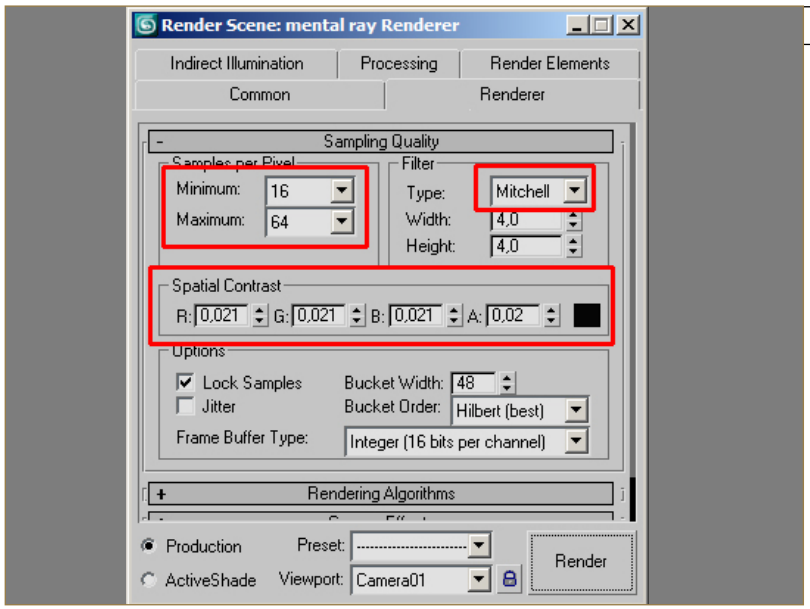


Fig 22

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render, we now need to increase the level of detail and quality. Let's start from the Anti-$OLDVLQJ ¿OWHU 2SHQ WKH 5HQ
go to the Renderer tab. Set the Filter to Mitchell and the Min/Max to 16/64. Also, lower the Threshold values as shown in Fig.22. This time it will take a little longer to render the scene, but you will see a lot of details that were lacking in previous renders.

Fig 23

23. Now let's raise the quality of the Final Gather. Set the Preset to High and render again. It will take even longer to render than before, but WKH ¿QDO LPDJH ZLOO EH PXFK
quality and detail (Fig23).

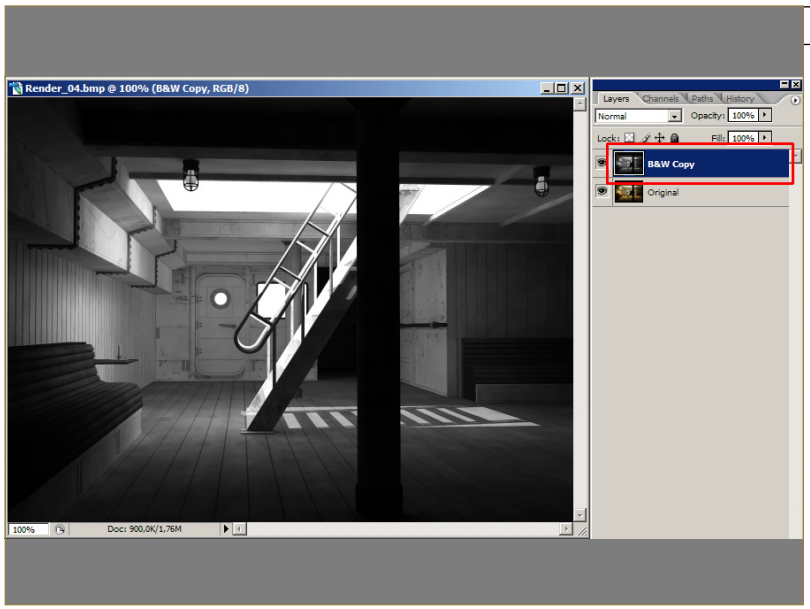
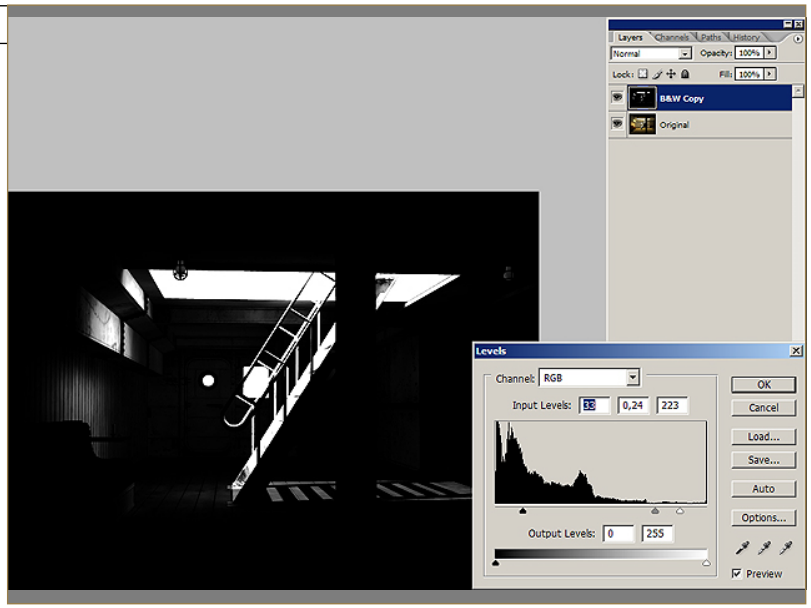


Fig 24

24. Now that we have a pretty good lighting setup for our scene, we can start to tweak the ¿QDO UHQGHU ZLWK ' VRIWZDUH
Open the rendered image in Photoshop, duplicate the original layer and Desaturate it, as shown in Fig24.

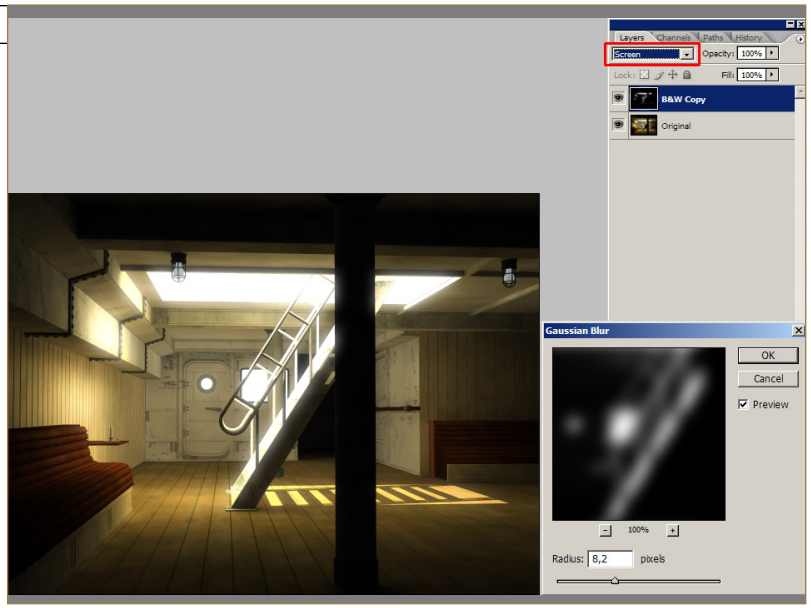
25. Adjust the Levels until you get something similar to Fig25. We just need to extract the areas of the image with more light.

Fig 25



26. Change the Blending mode for the top layer to Screen and apply a fair amount of Gaussian Blur (Fig26).

Fig 26



27. Set the top layer's opacity to a lower value, and change the Hue & Saturation to something warmer (Fig27).

Fig 27

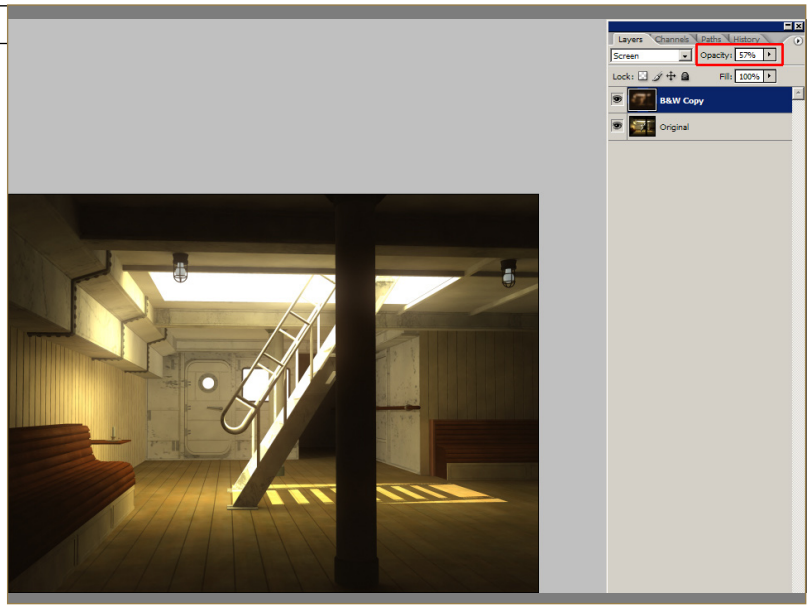


Fig 28

28. Go back to 3DS Max now and reset the Renderer to the Default Scanline. Create a new Standard material in the Material Editor and set its Diffuse colour to pure black. Assign this material to every object in the scene. Select the main Spot light, go to the Environment menu and add a Volume effect. Pick the Spot light and render the scene. You should get something similar to Fig28.

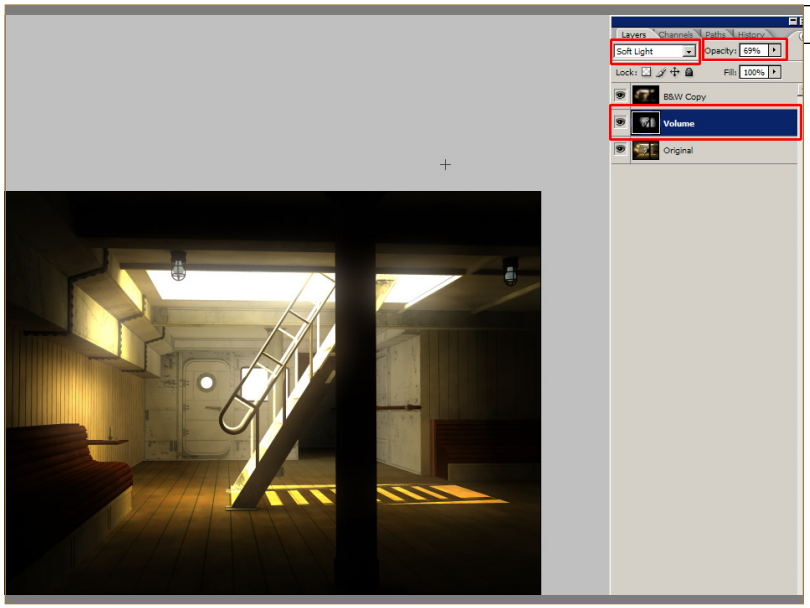


Fig 29

29. Import this new render into Photoshop and put it right between the top and bottom layer. Also, set its Blending mode to Soft Light and its Opacity to 69 (Fig29).

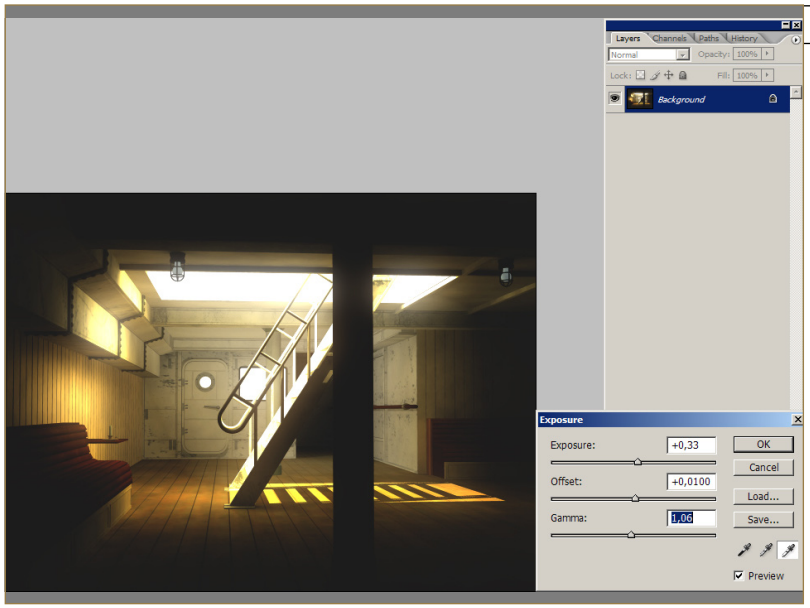


Fig 30

30. If you want, you can improve the exposure of the picture with the Exposure tool in Photoshop.

3D Environment Lighting

Chapter 01
Natural Exterior Lighting
Sunny Afternoon

Originally designed and modelled by:
Richard Tilbury

Tutorial by:
Luciano Iurino

For more from this artist visit:
www.pmstudios.it
Or contact them:
iuri@pmstudios.it

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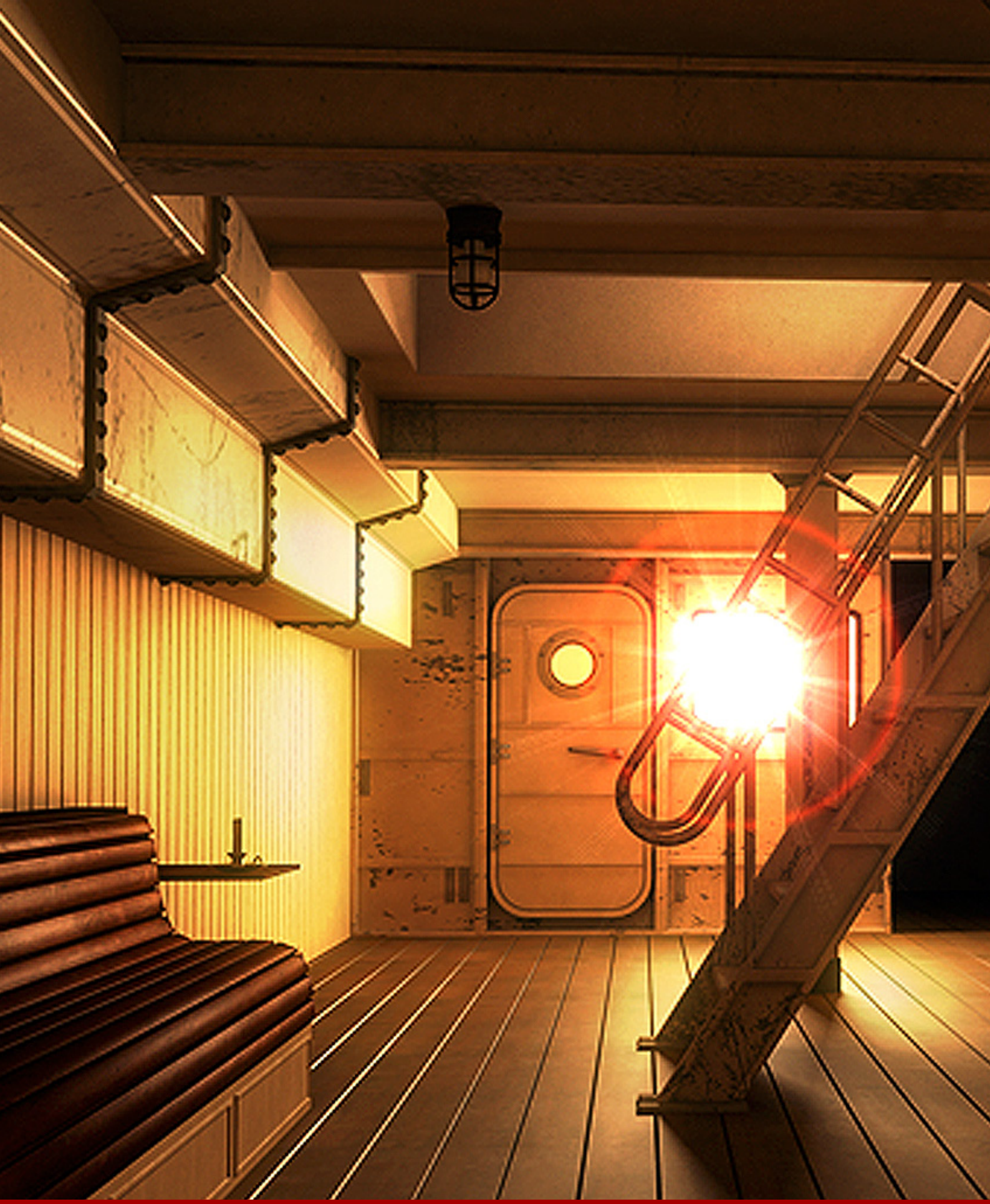


Chapter 02

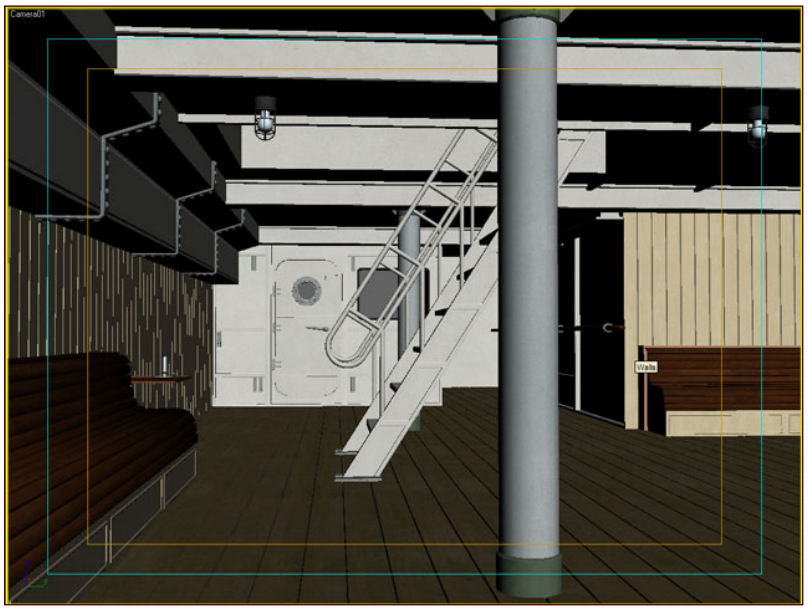
Natural Exterior Lighting
Twilight

3ds max

NATURAL EXTERIOR LIGHTING TWILIGHT

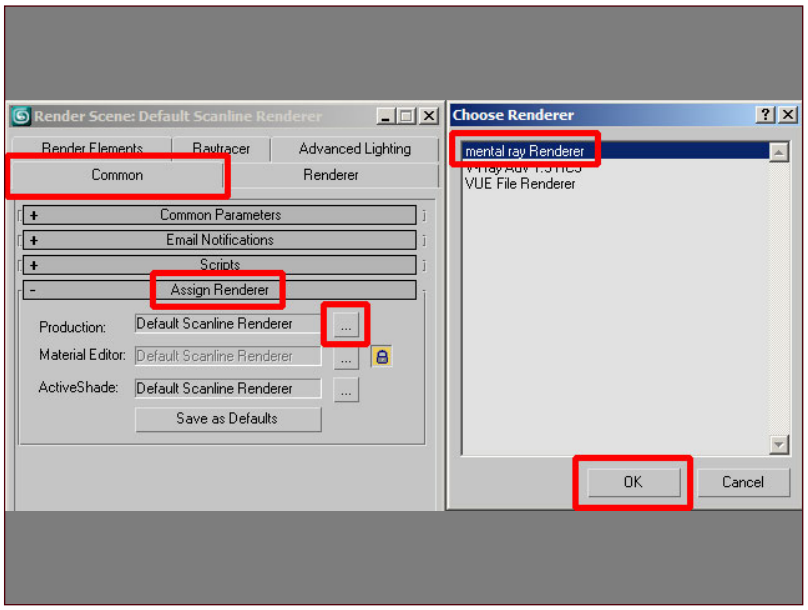
1. This chapter, we'll set up our lighting scene to make it resemble a moody sunset. As usual, we'll use Mental Ray renderer to accomplish this task. Open the Ship Cabin_Sunset_Start.max scene included with this tutorial (download can be found at the end of this tutorial; click on the Free Resources logo) (Fig01)

Fig 01



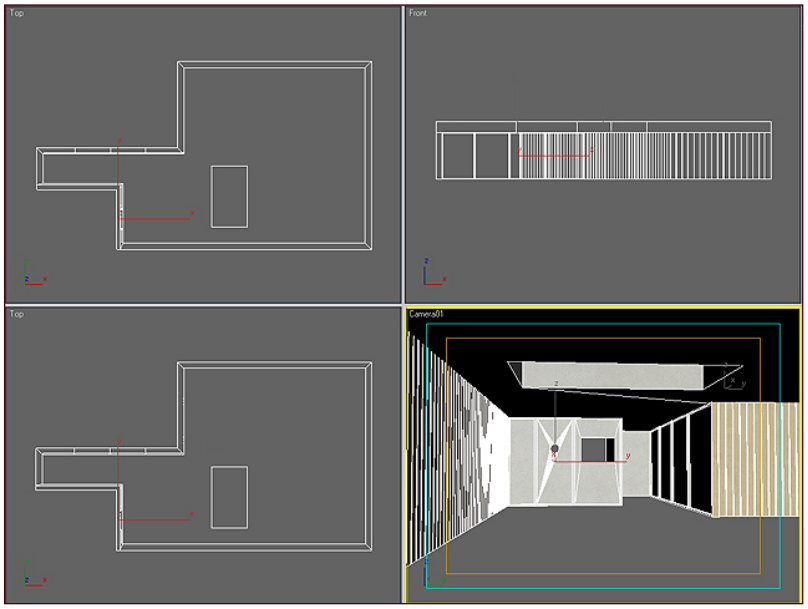
2. First of all, let's assign Mental Ray as our renderer. Open the Rendering panel (you can use the F10 shortcut key), switch to the Common tab and go to the Assign Renderer rollout (Fig02). Click on the button with the three dots and select mental ray Renderer from the list. Click OK to close the browser window.

Fig 02



3. Select the Walls and Ceiling objects and hide everything else. This will help us achieve a better visualisation whilst we create the lights that we need for the scene (Fig03).

Fig 03



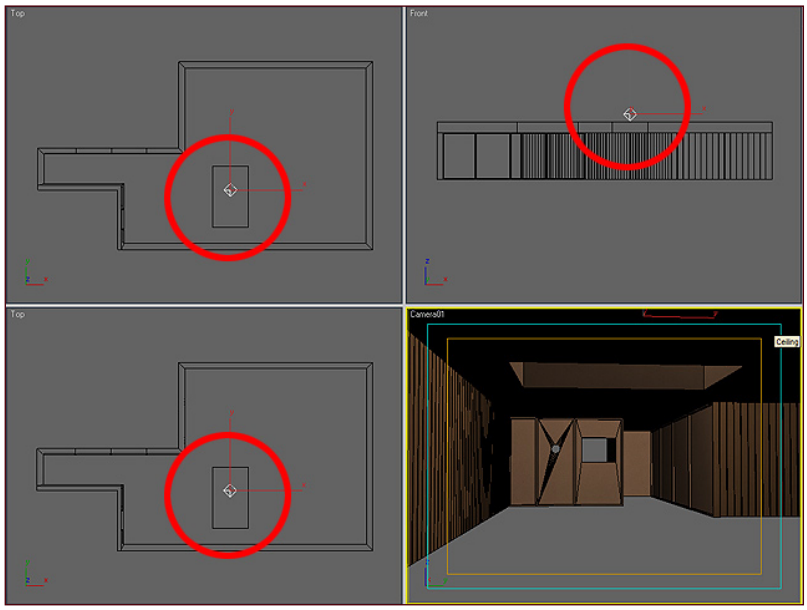


Fig 04

4. Create a simple Omni light and position it as shown in Fig04, just above the opening in the ceiling. This Omni light will simulate light entering from the ceiling. It is not our key light, so its intensity will be quite low.

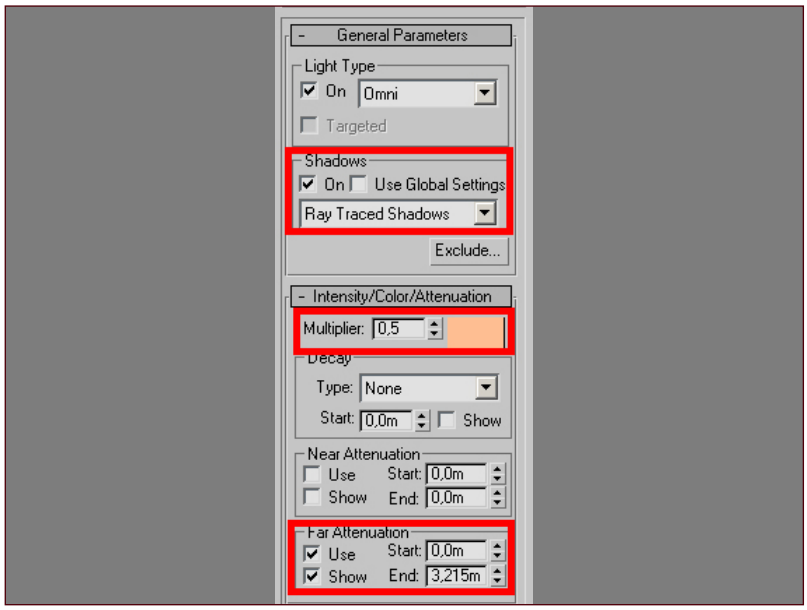


Fig 05

5. Select the Omni light and change its parameters, as shown in Fig05. Activate the Shadows option, and set it to Ray Traced Shadows. Set the Multiplier to something like 0,5 and it's colour to R=254 G=190 B=146. Also, enable the Use and Show options for the Far Attenuation, and set them respectively to 0,0m and 3,213m.

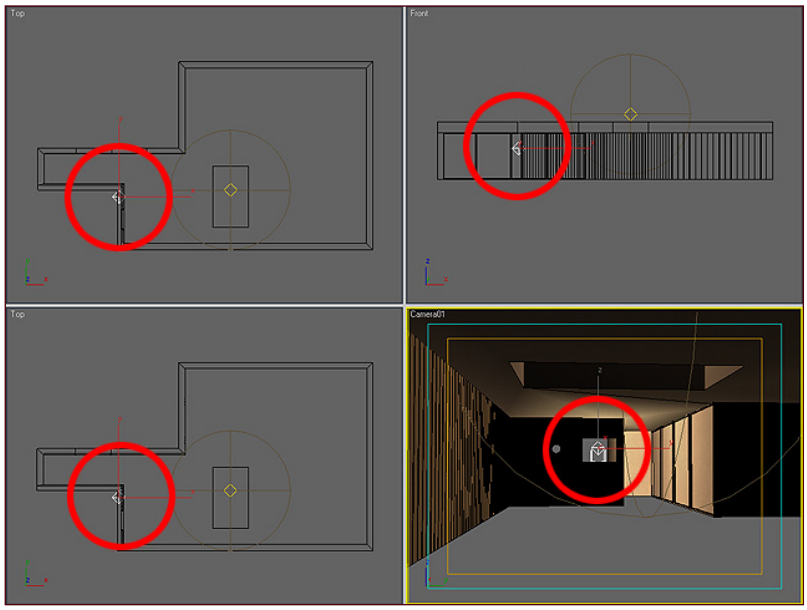
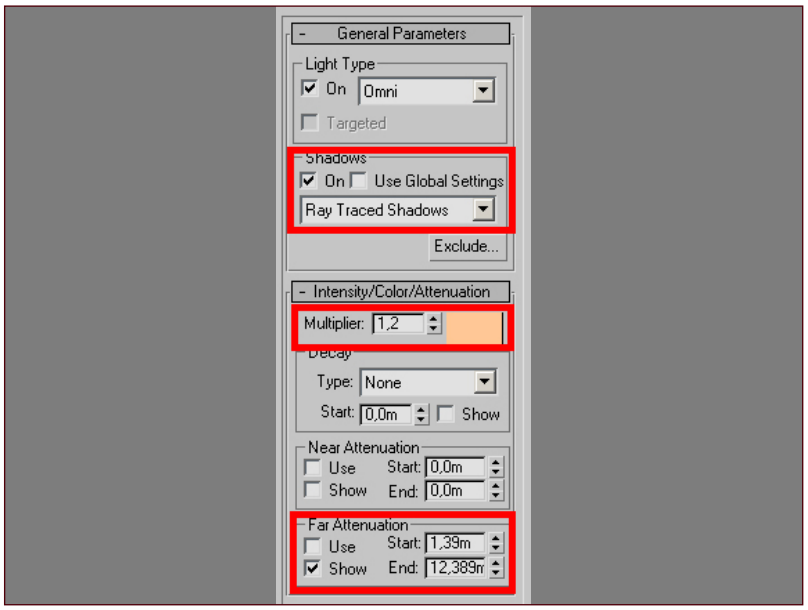


Fig 06

6. Now create another Omni light. This time, it has to be a mental ray Area Omni, since we need soft area shadows for our sunset. Position this new light as shown in Fig06, on the back wall area close to the windows. This Omni light will be our main light, since it will simulate the sun. Its intensity will be greater than the other light, and together with the shadows it will give our scene the mood we desire.

7. Select the mental ray Area Omni light and change its parameters, as shown in Fig07. Enable the Shadows and set them to Ray Traced. Set the Multiplier to 1,2 and its colour to R=255 G=199 B=150 (Fig07).

Fig 07

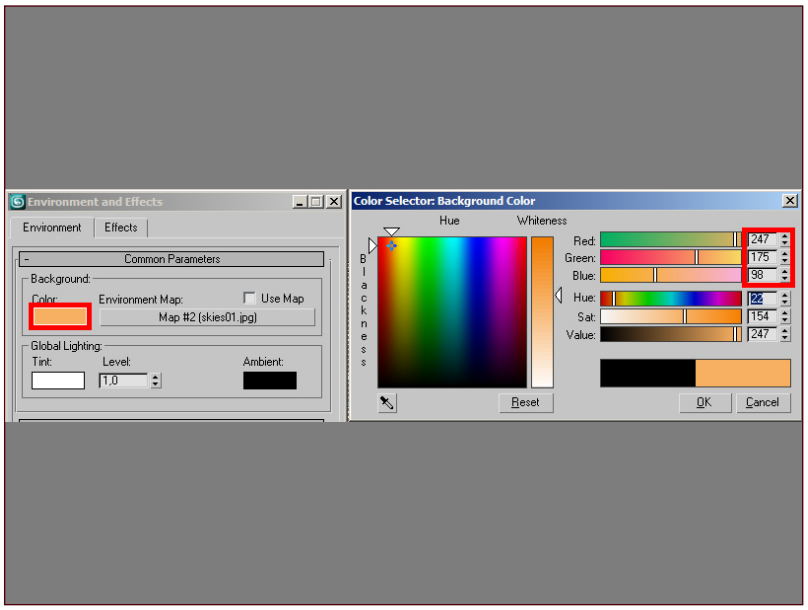


8. Open the Area Light Parameters rollout. Make sure that On is checked and set the Type to Sphere. Change the Radius value to something like 0,54m and the Samples to U=10 V=10 (Fig08).

Fig 08

9. Before we start rendering the scene, we need to change another small thing. Open the Environment panel (use the <8> shortcut key) and change the Background Colour to R=247 B=176 G=98 (Fig09).

Fig 09



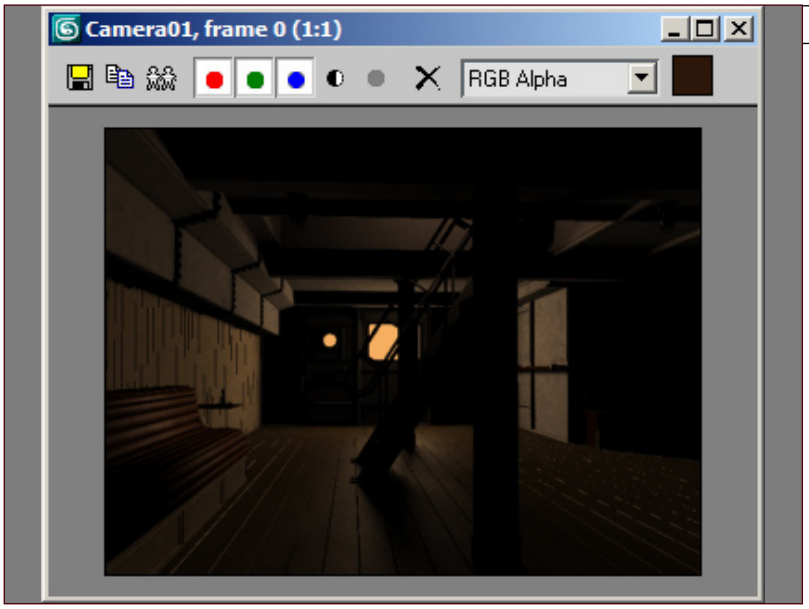


Fig 10

10. Now we can do a quick test render (Fig10). As you can see, the two lights are not enough to create our moody sunset lighting. We need some light bounces all over the scene to improve the general quality of the lighting...

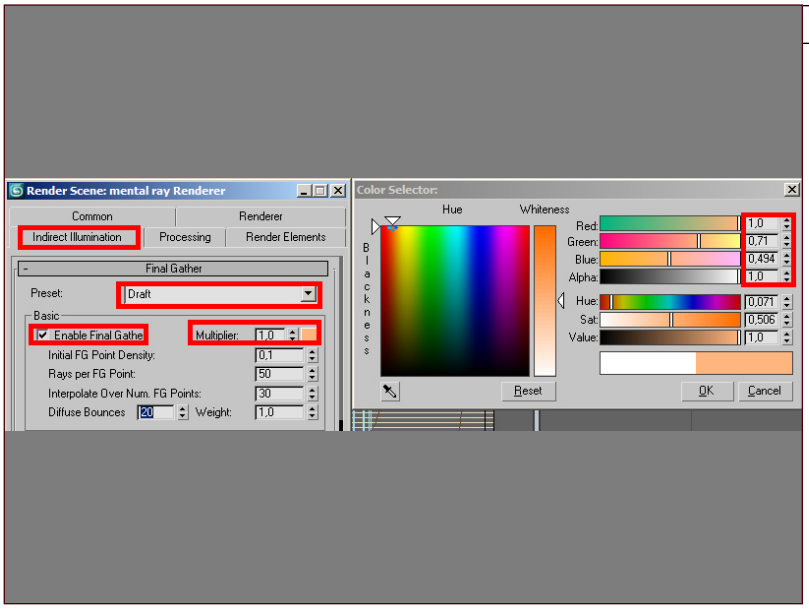


Fig 11

11. Open the Rendering panel once again and switch to the Indirect Illumination tab. Enable Final Gather and set the Preset to Draft (we don't need high quality at the moment, it's just for testing). Set the Multiplier to 1 and its colour to R=1,0 G=0,71 B=0,494. Also, set the Diffuse Bounces value to 20 (Fig11).

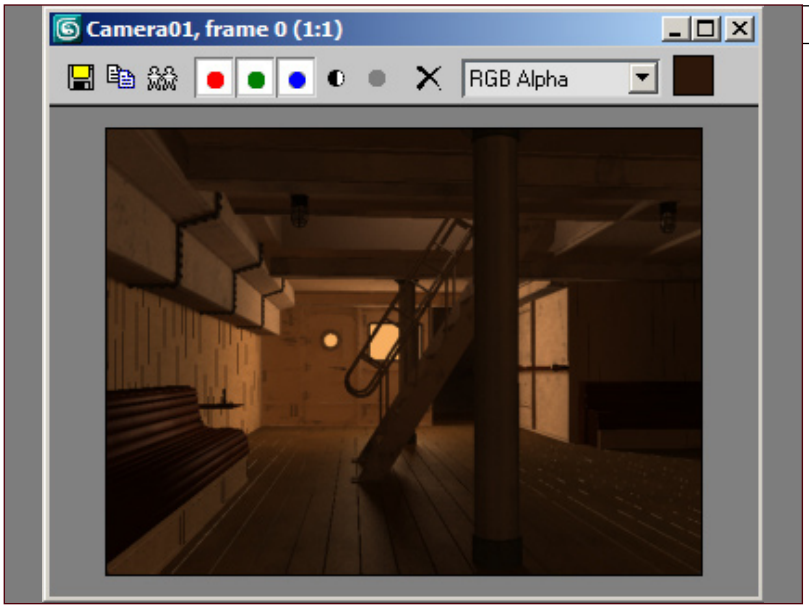
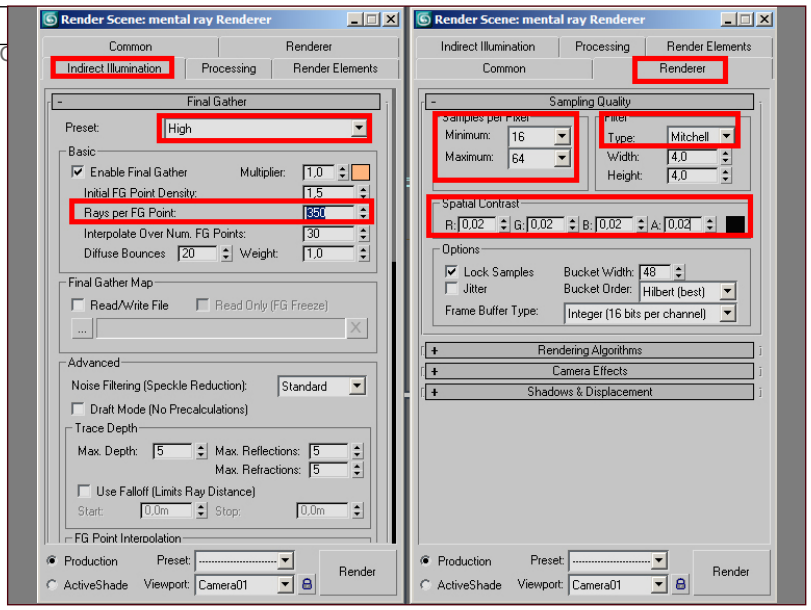


Fig 12

12. Render the scene again. This time it will take longer, which is because of the Final Gather calculation that mental ray needs in order to create the bounces of light (Fig12).

13. Now we have a nice lighting situation, with D NH\ OLJKW D ¿OO OLJKW DQG VRPH C :H FDQ QRZ VHW XS RXU ¿QDO UHQGHU values. Open the Rendering panel and set the Preset to High. Change the Rays per FG Point value to 350 (the default for 'High' is 500, but we don't need such a high value; you can always try other values if you wish). Switch to the Renderer tab and set the Minimum and Maximum values for Samples per Pixel to 16 and 64 (Fig13). Change the Filter type to Mitchell and the Spatial Contrast R, G, B and A to 0,02. Also, switch to the Common tab and set a higher resolution for the rendering, for example 640x480 (or even higher if you wish - just keep an eye on the rendering times; the bigger the resolution, the longer it will take to UHQGHU WKH ¿QDO LPDJH

Fig 13



5HQGHU WKH VFHQH DJDLQ DQG VDY picture to use it later in Photoshop for post-production (Fig14).

Fig 14

15. Now we need to render an Ambient Occlusion pass to composite it with the rendered image. Open the Ship Cabin_AO.max scene ¿OH LQFOXGHG ZLWK WKLV WXWRULDO was created (AO_Shader) and assigned to every object in the scene. This material has DQ $PELHQW 5HÀHFWLYH 2FFOXVLRQ VK Surface slot. You can take a look at Fig15 to see the shader's parameters.

Fig 15

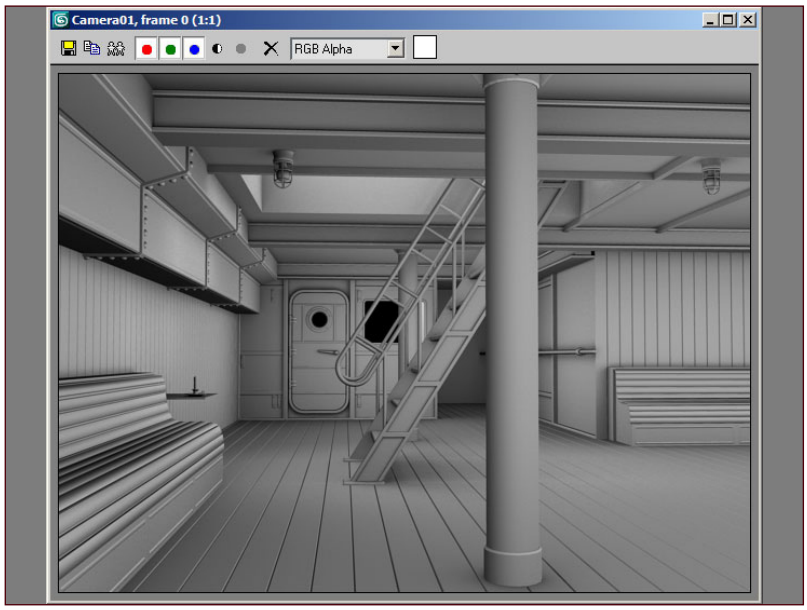


Fig 16

16. Render the scene to create the Ambient Occlusion pass that we need (Fig16). Don't forget to render the AO pass with the same size as the previously rendered picture.

Fig 17

17. Start Photoshop and import both the original rendering and the Ambient Occlusion pass (Fig17).

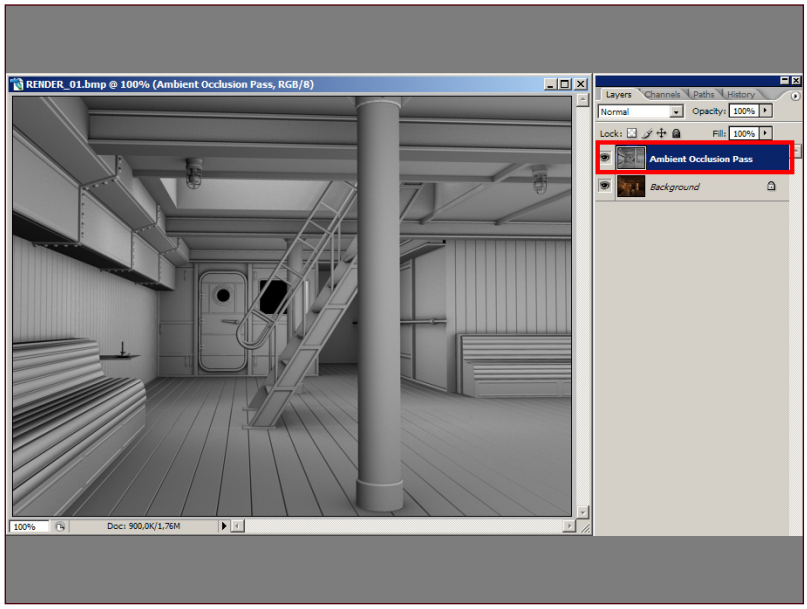
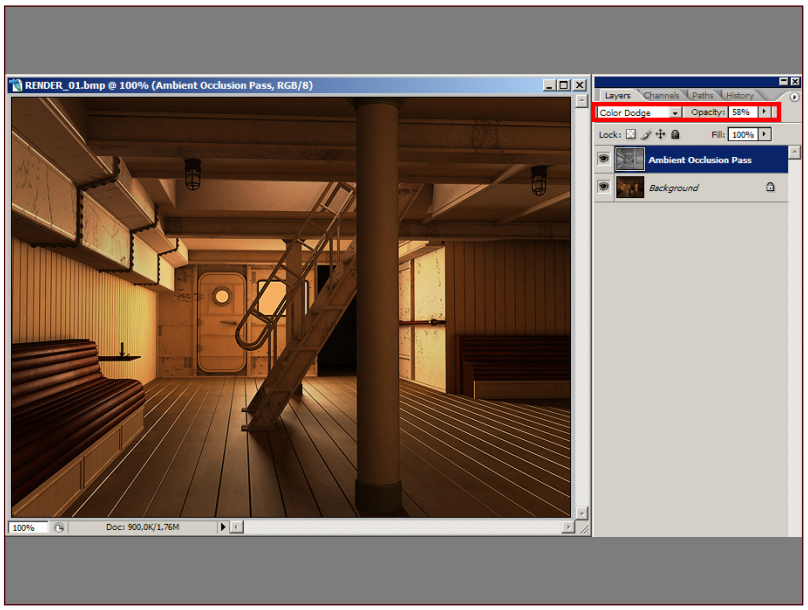


Fig 18

18. Switch to the Ambient Occlusion image. Select all (Ctrl + A) and Copy (Ctrl + C). Switch to the Original rendering and Paste the AO pass above it (Ctrl + V) (Fig18).

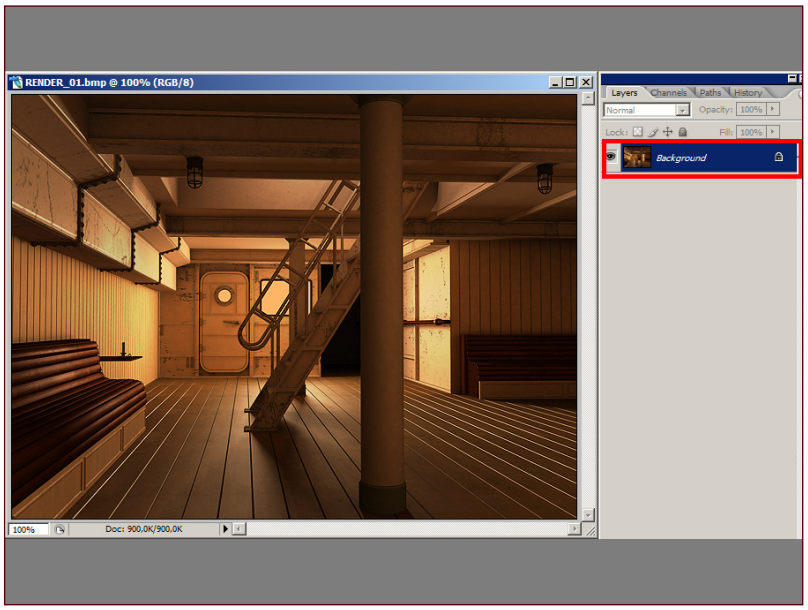
19. Change the AO Pass blending mode to Colour Dodge and its Opacity to about 58% (Fig19).

Fig 19



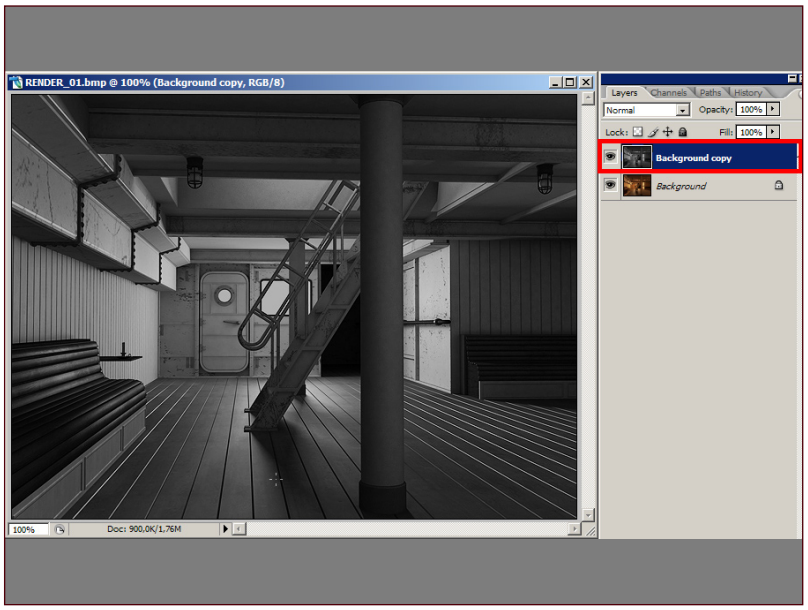
20. Now select both layers and use Ctrl + E to À D W W H Q W K H P W R J H W K H U) L J

Fig 20



21. Duplicate the background layer and desaturate the newly created layer (Fig21).

Fig 21



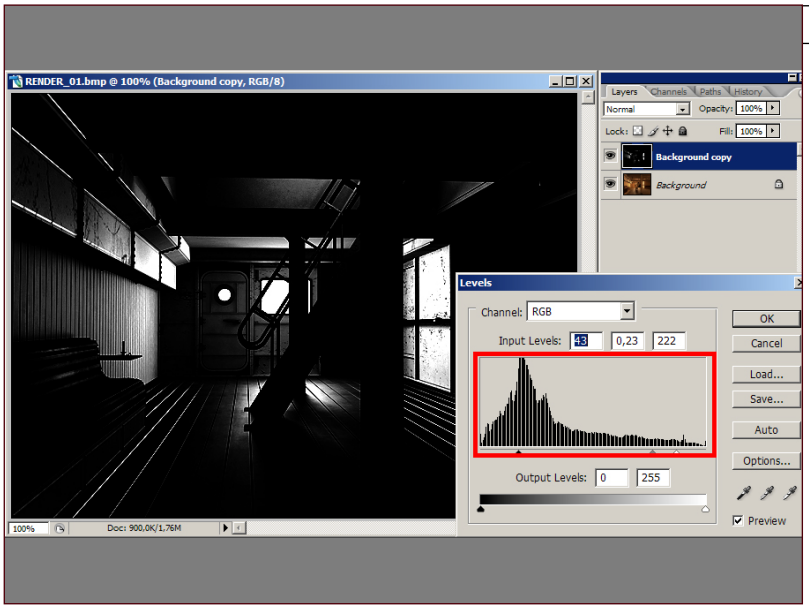


Fig 22

22. Change the Levels until you expose the brightest areas of the image (Fig22).

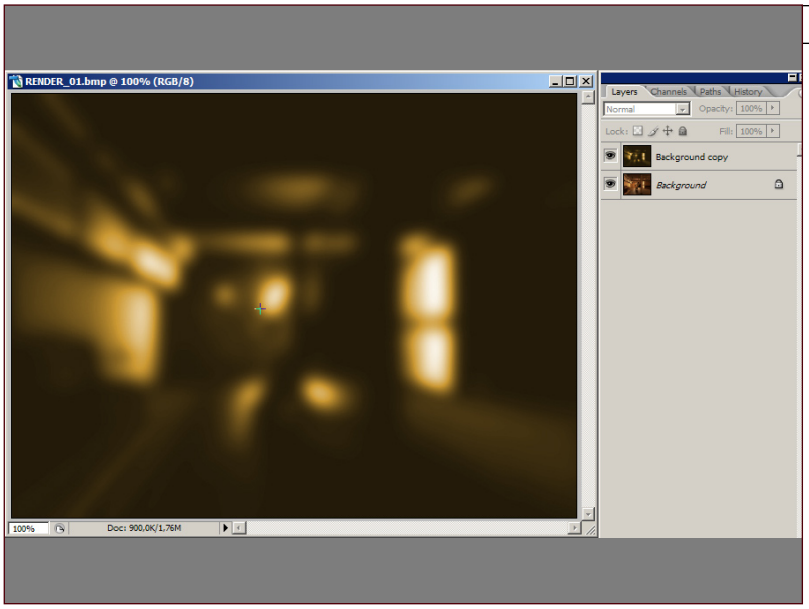


Fig 23

23. Apply a fair amount of Gaussian Blur to this layer and colourise it (Hue & Saturation), as shown in Fig23.

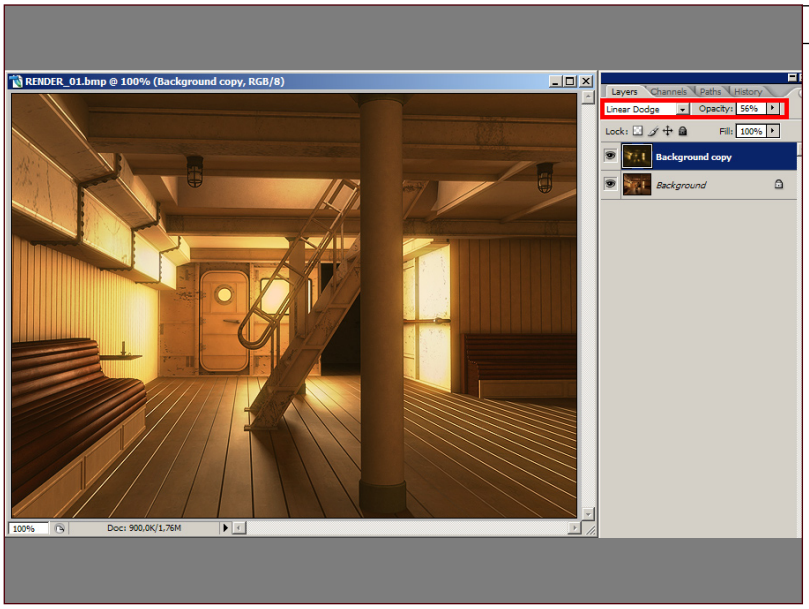
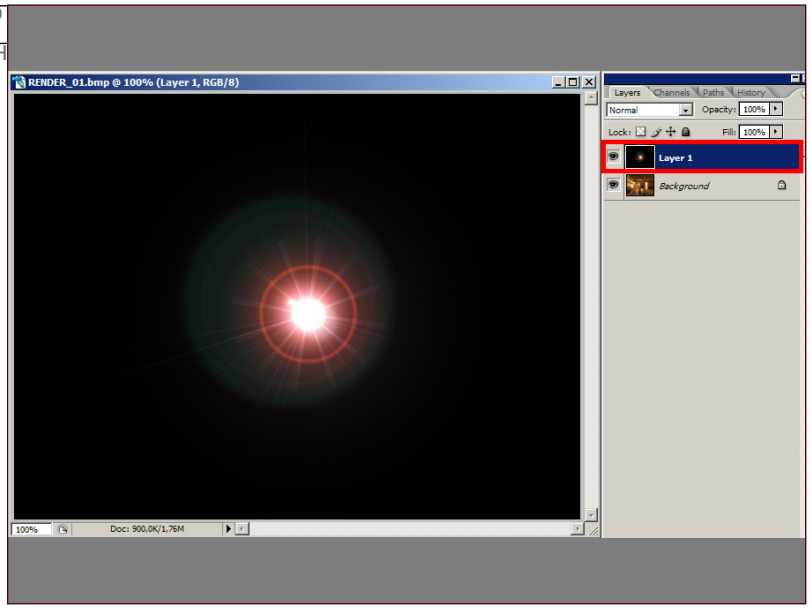


Fig 24

24. Change the Blending Mode for this layer to Linear Dodge and set its Opacity value to 56% (Fig24).

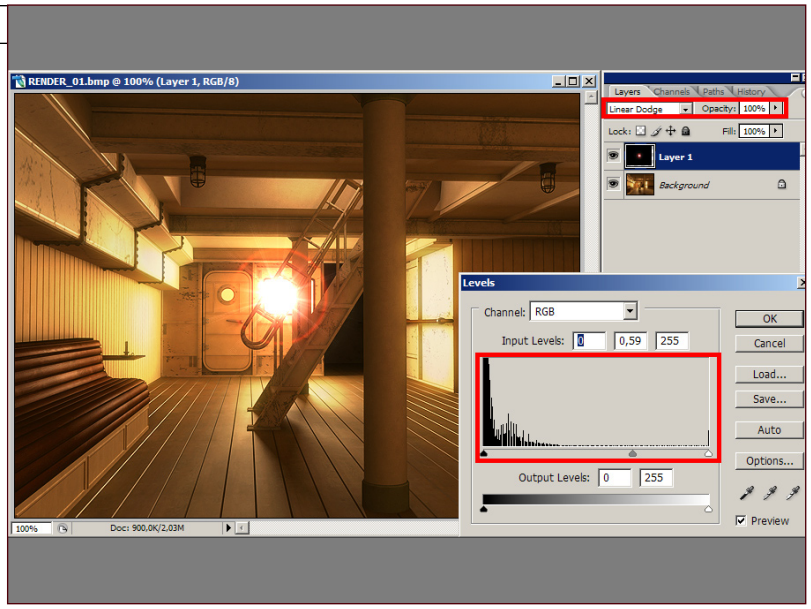
6HOHFW ERWK OD\HUV DQG ÀDWWHQ &WUO (&UHDWH D QHZ HPSW\ OD\H with a pure black colour. Use the Filter / Render / Lens Flare effect to create something similar to Fig25.

Fig 25



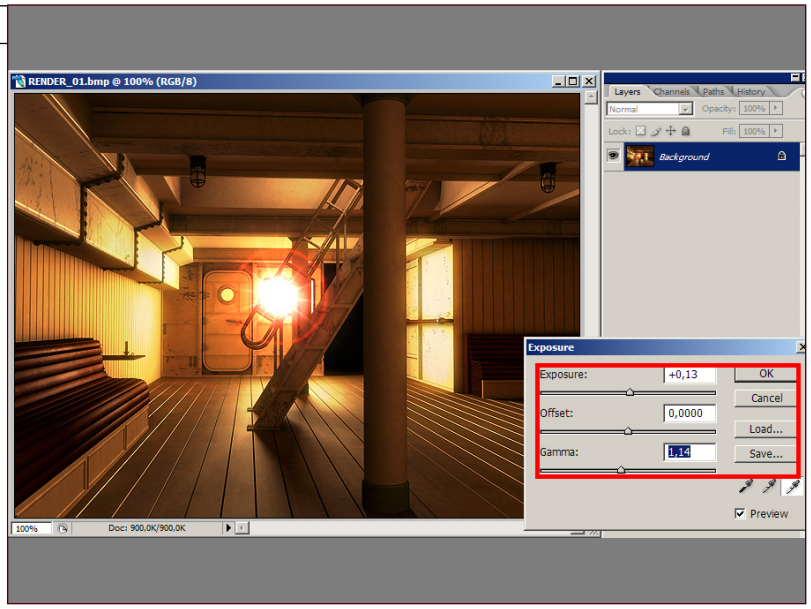
26. Set the blending mode of the top layer to Linear Dodge and adjust the Levels until you get the desired effect (Fig26).

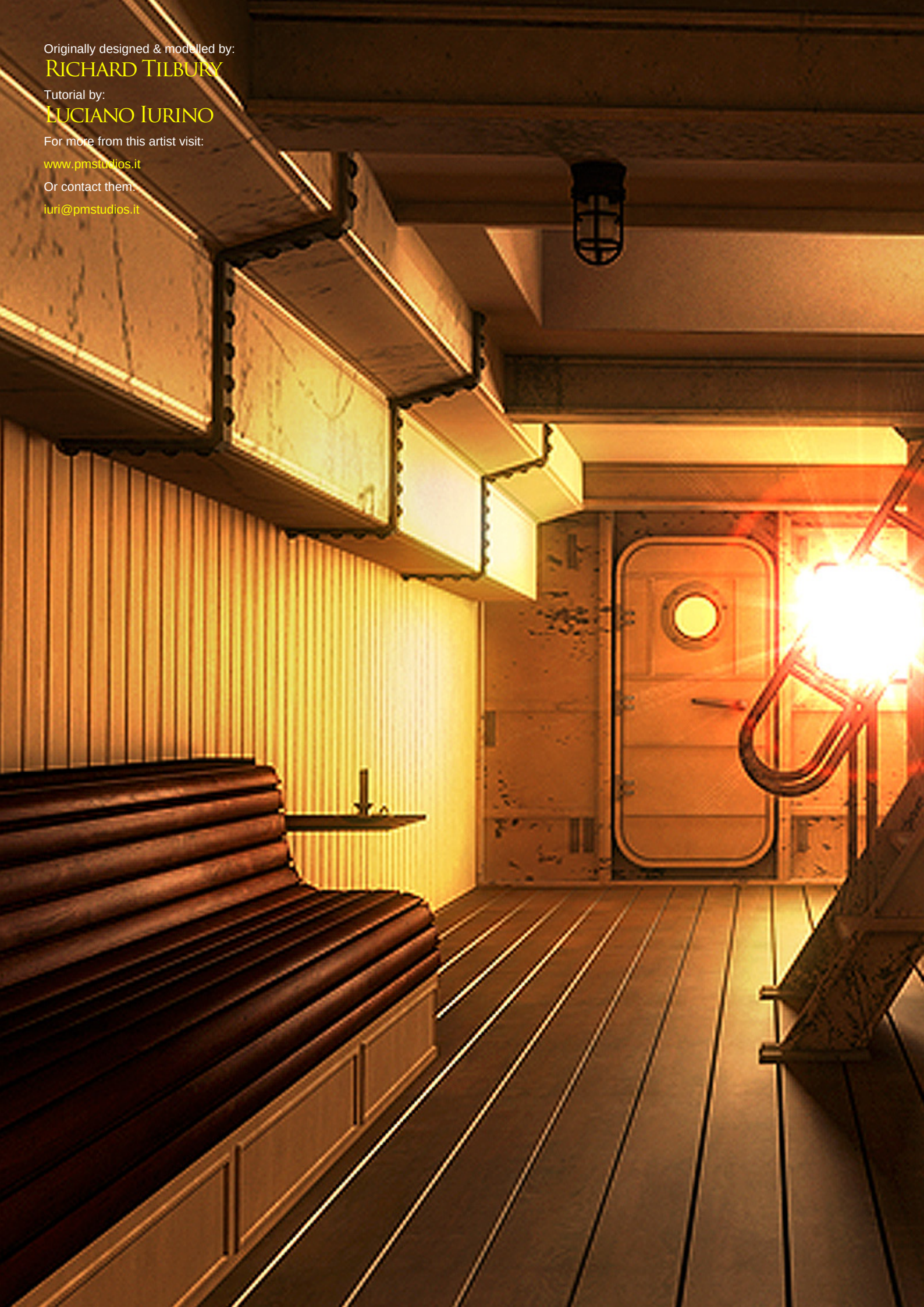
Fig 26



27. Finally, you can adjust the exposure to slightly change the overall feel of the image (Fig27).

Fig 27





Originally designed & modelled by:
RICHARD TILBURY
Tutorial by:
LUCIANO IURINO
For more from this artist visit:
www.pmstudios.it
Or contact them:
iuri@pmstudios.it

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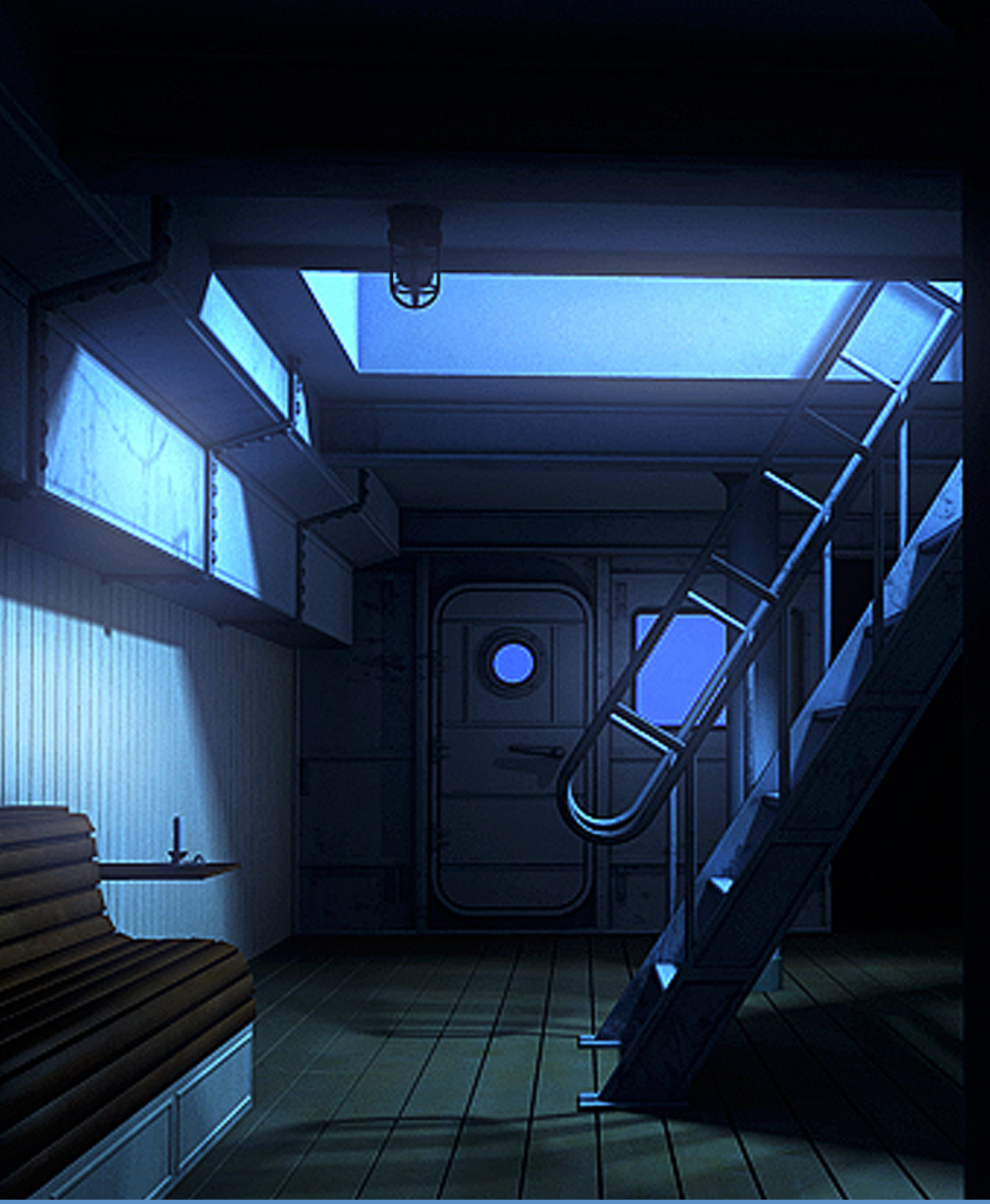


Chapter 03

Natural Exterior Lighting
Moonlight

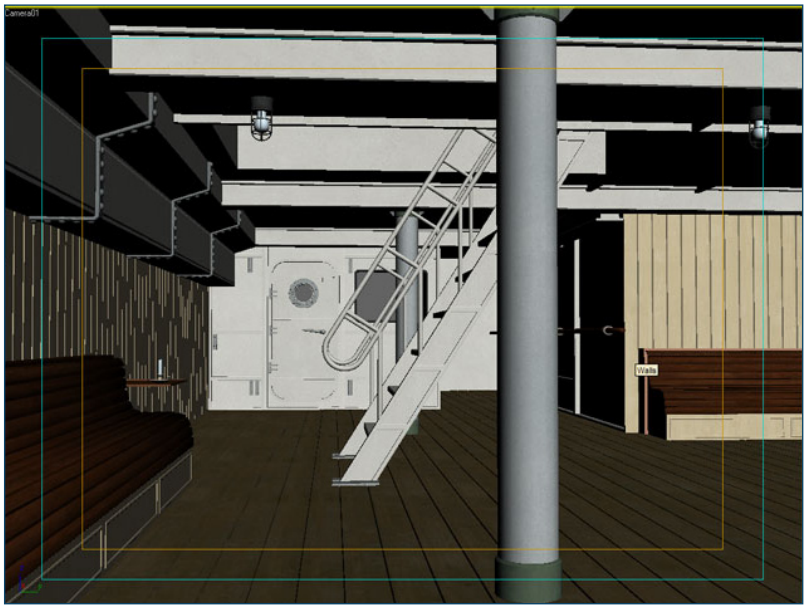
3ds max

Natural Exterior Lighting Moonlight

This time we'll create a typical moonlight setup for the ship cabin scene, for which we'll use the Mental Ray renderer...

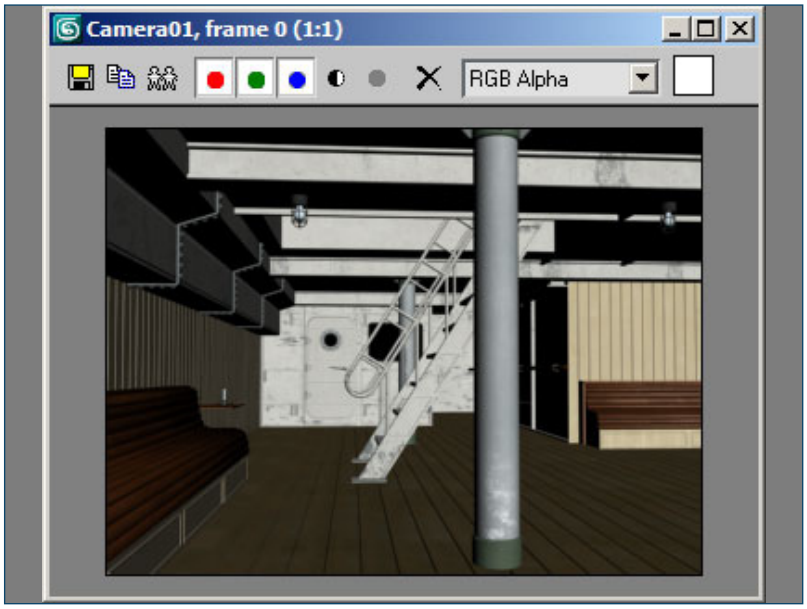
1. Open the Ship Cabin_Moon_Start.max scene included with this tutorial (download can be found at the end of this tutorial; click on the Free Resources logo) (Fig01).

Fig 01



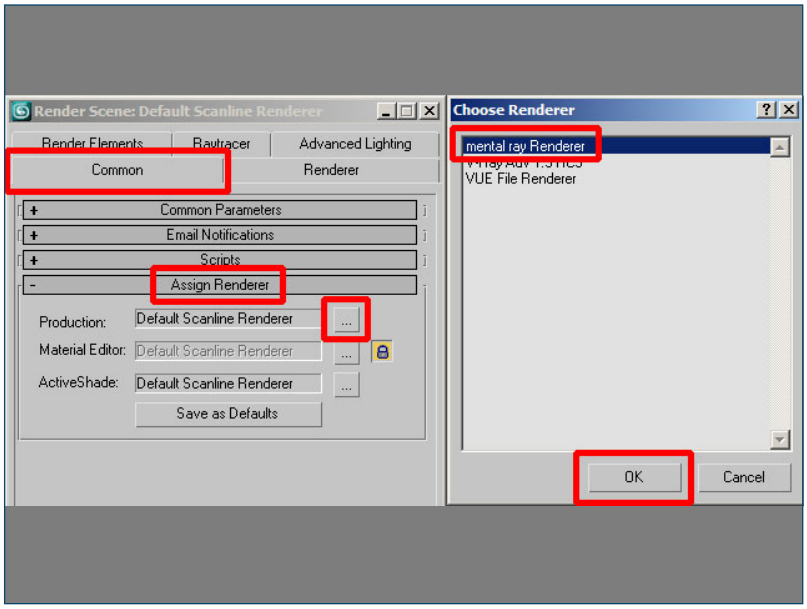
2. If you try to render the scene, you will get something similar to Fig02, as there are still no lights in the scene (Fig02).

Fig 02



3. First of all, let's assign Mental Ray as the renderer. Open the Rendering panel (F10) and click on the button with the three dots in the Assign Renderer roll-out. Select "mental ray Renderer" in the window that appears, and click OK (Fig03).

Fig 03



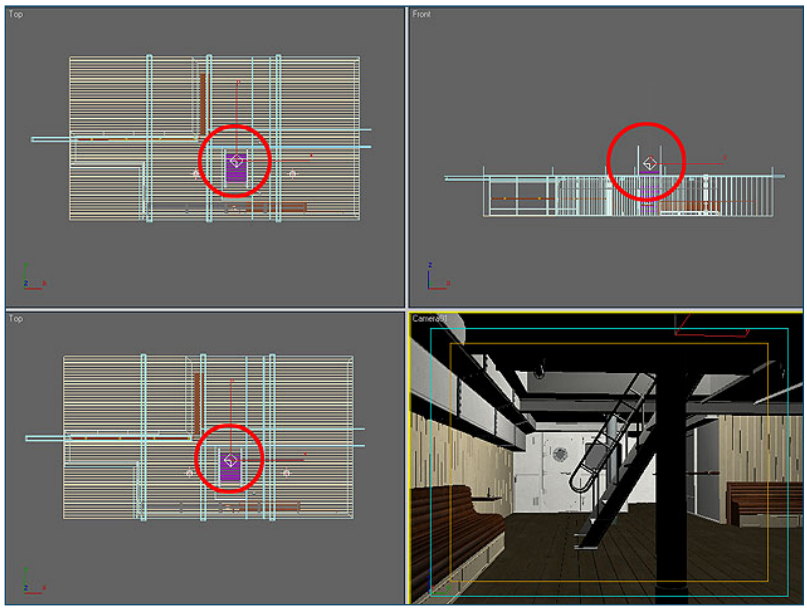


Fig 04

4. Create a mental ray Area Omni light and position it as shown in Fig04, just above the opening in the ceiling (Fig04). This will be our Key light (the moon).

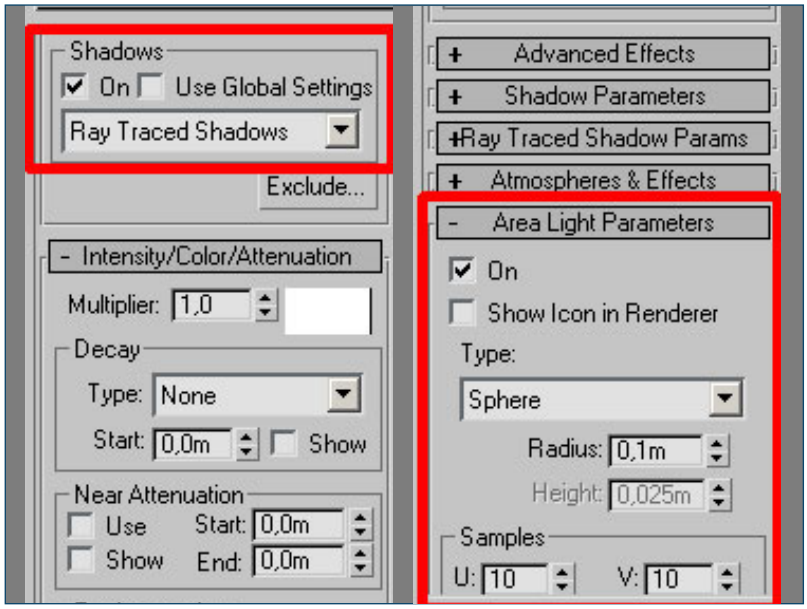


Fig 05

5. Enable the Shadows option (Ray Traced Shadows) and leave the other parameters as they are for the moment. In the Area Light Parameters, make sure that the On option is checked; set the Type to Sphere, the Radius value to 0.1m, and the Samples to 10/10 (Fig05).

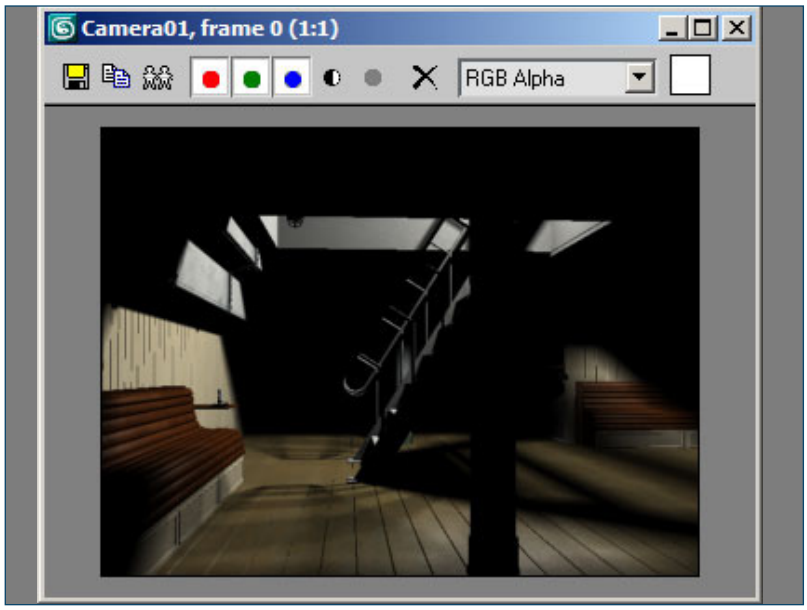
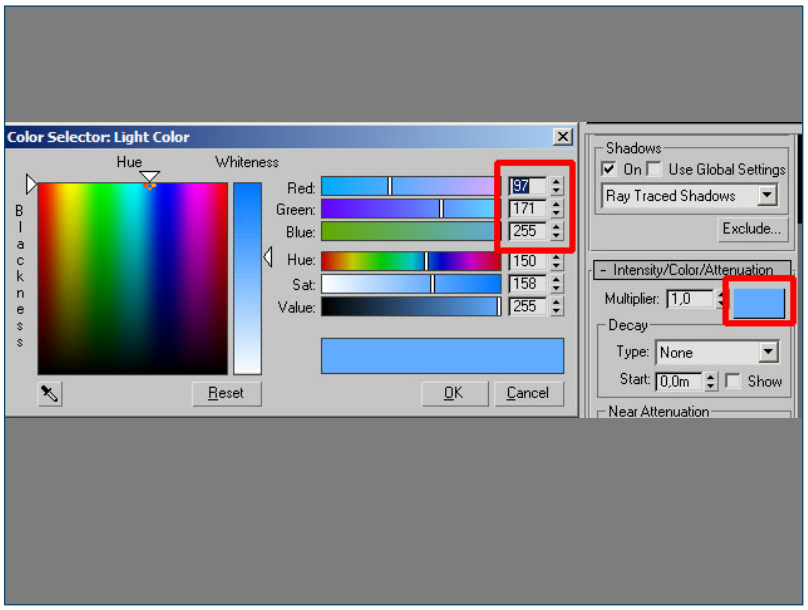


Fig 06

6. Let's make a quick test render (Fig06). The amount of lighting seems to be OK, and the shadows too, but the colour is not right as it should be something more blueish.

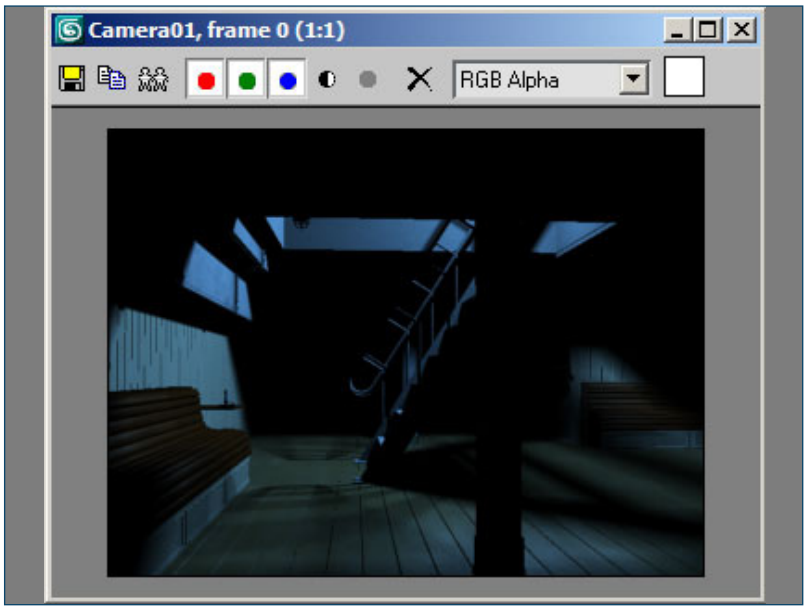
7. Go back to the mental ray Area Omni parameters and change its colour to something like that shown in Fig07.

Fig 07



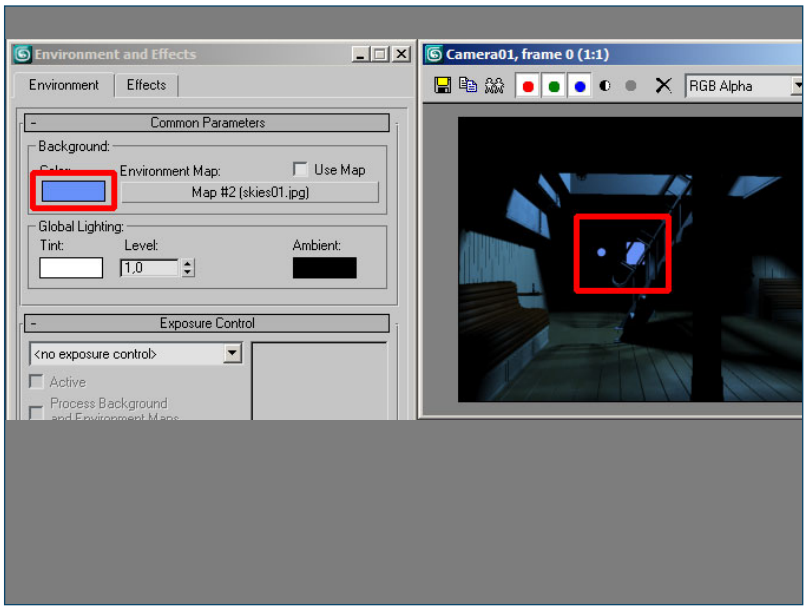
8. Render the scene again (Fig08). It looks better, now.

Fig 08



9. Let's change the Environment Background colour (using the '8' shortcut key) to the same colour that we just gave to the Omni light, and let's render the scene again (Fig09).

Fig 09



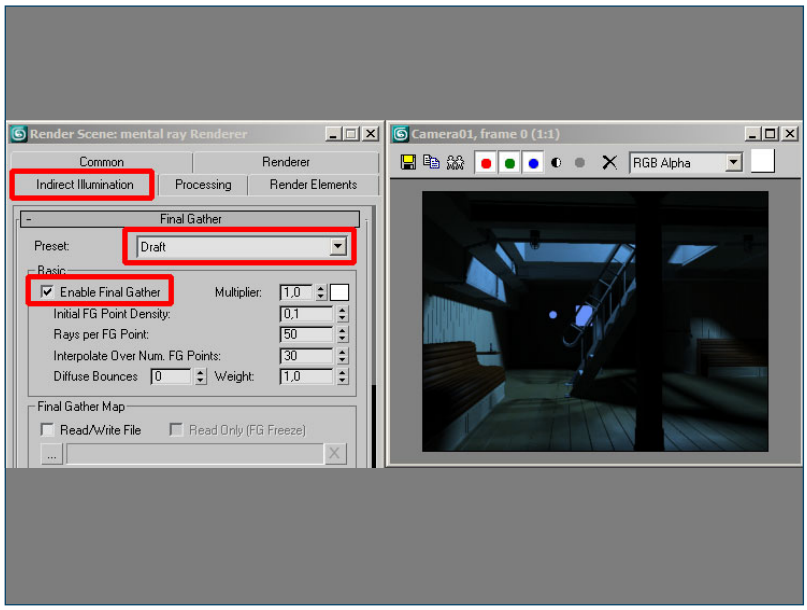


Fig 10

10. Now we need some bounces of light all around the scene. Let's enable Final Gather in the Indirect Illumination tab of the Rendering panel. Set the Preset to Draft and render the scene again (Fig10).

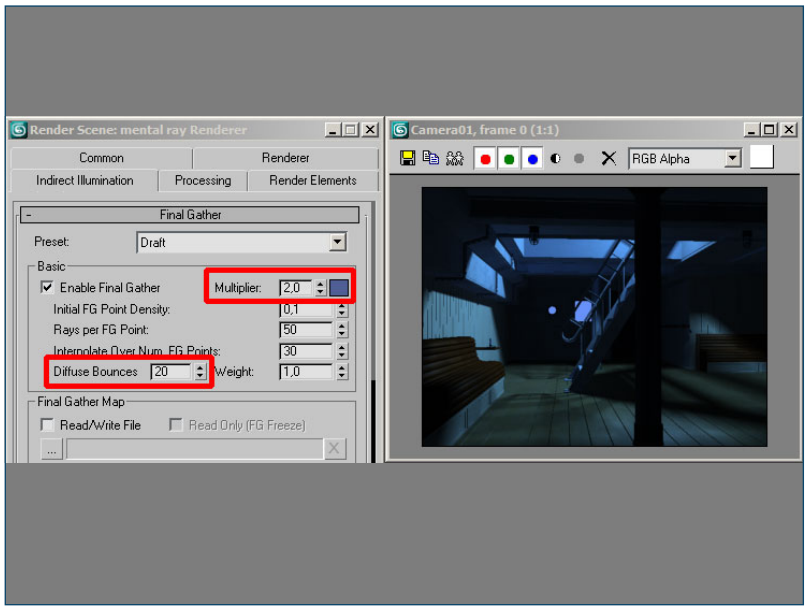


Fig 11

11. Since we need more light and bounces, we have to increase the FG Mutliplier value to 2. Also change the Mutliplier colour to something blueish, as shown in Fig11. Increase the Diffuse Bounces value to 20, or even more if needed.

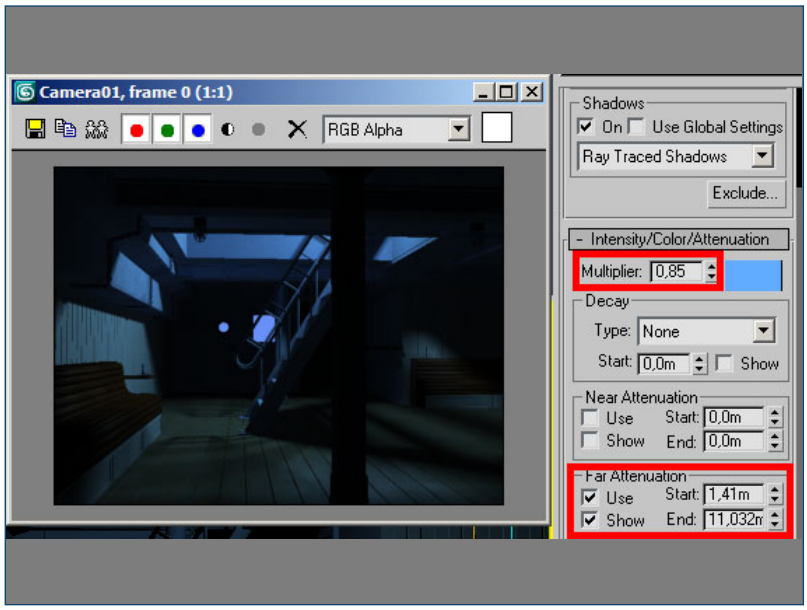
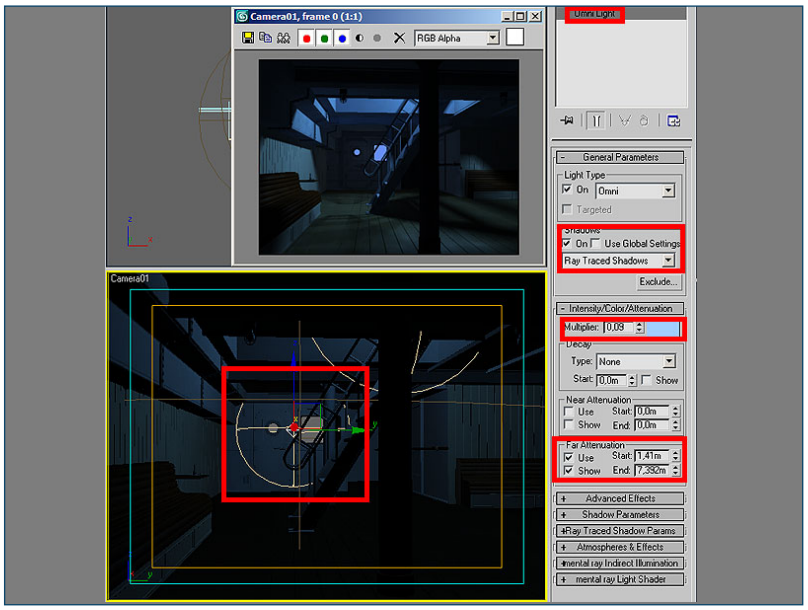


Fig 12

12. Now there's much more light. Select the mental ray Area Omni and lower the Multiplier to a value of about 0,85. Also enable the Use and Show options for Far Attenuation and set their parameters to respectively 1.41m and 11.032m (Fig12).

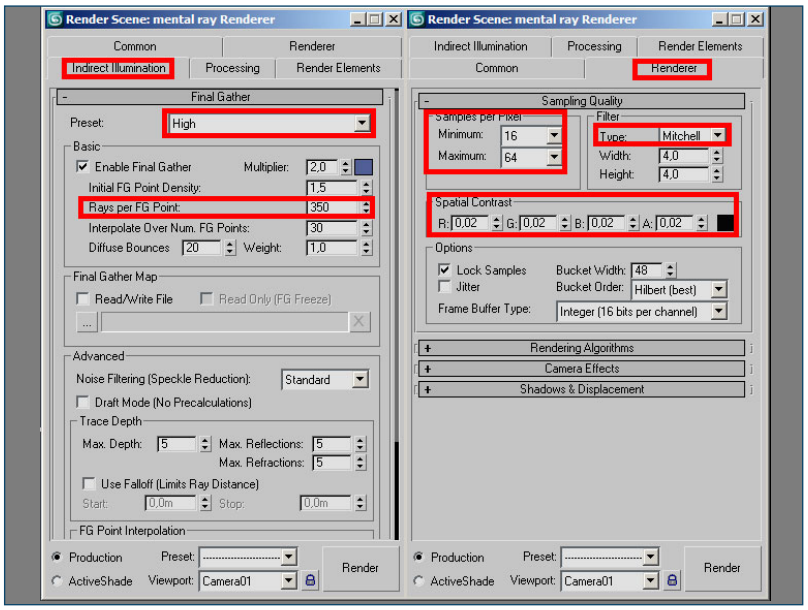
13. The Key light seems to be OK. We now need some more light in the back of the room, near the windows. Create a simple Omni light and position as shown in Fig13. Also enable Shadows (Ray Traced); set the multiplier to 0,09 and its colour to a bright blue. Enable Far Attenuation Use and Show, and set their values to 1.41m and 7,.392m. Render the scene again.

Fig 13



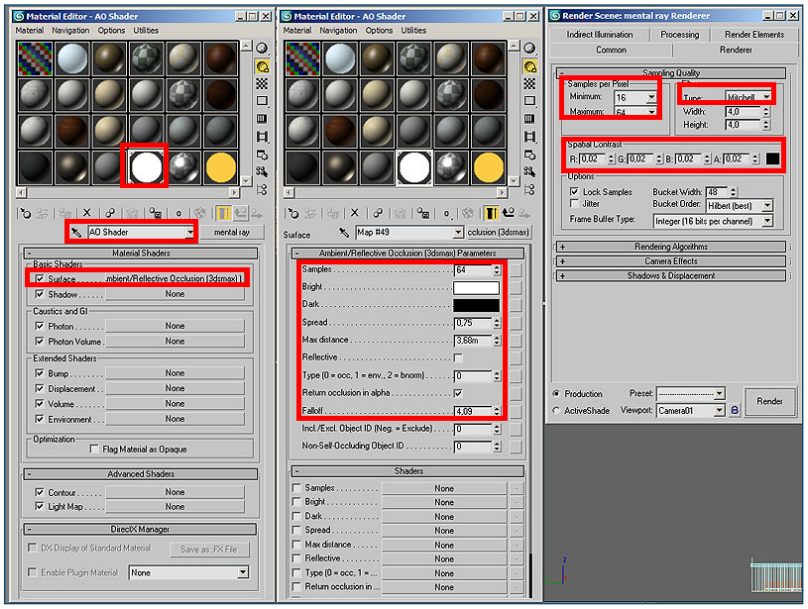
14. Now we have to set up a higher quality render... Go back to the Indirect Illumination tab and set the Preset to High. Set the Rays per FG Point value to 350. Switch to the Renderer tab and copy the parameters shown in Fig14. Increase the image resolution (for example, to 640x480 or even more) and render the scene. Save the picture to use it later on in Photoshop for post-production work.

Fig 14



15. We also need an Ambient Occlusion pass for compositing. Open the Ship Cabin_AO.max scene and render it. The AO_Shader material was assigned to every object in the scene, and its parameters were set up to achieve a nice AO solution (Fig15).

Fig 15



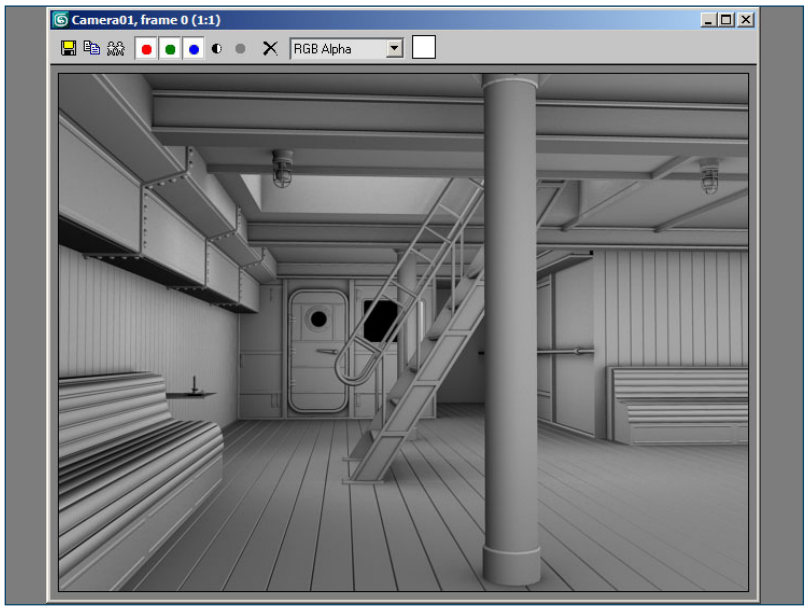


Fig 16

16. Render the scene and save this picture, too (Fig16).

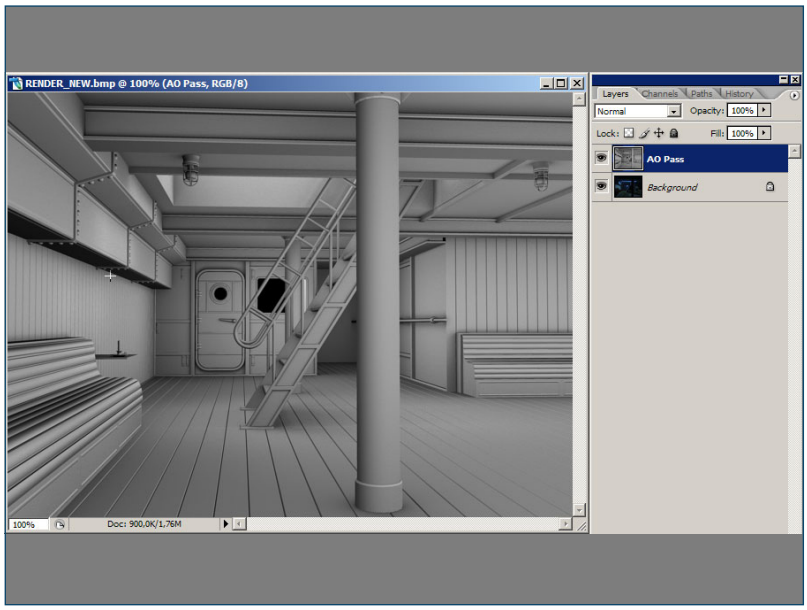


Fig 17

17. Start Photoshop and import both the original render and the AO pass. Select the AO pass, copy it, and paste it on the original rendered picture (Fig17).

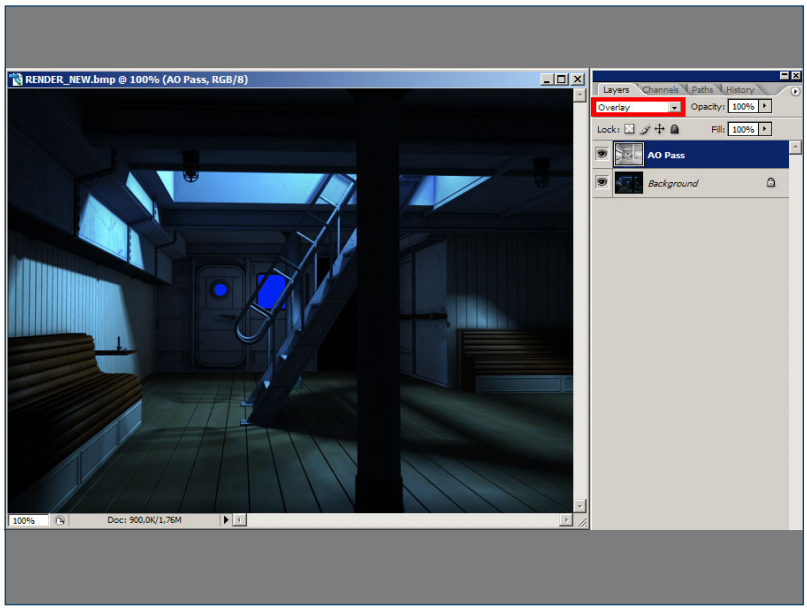
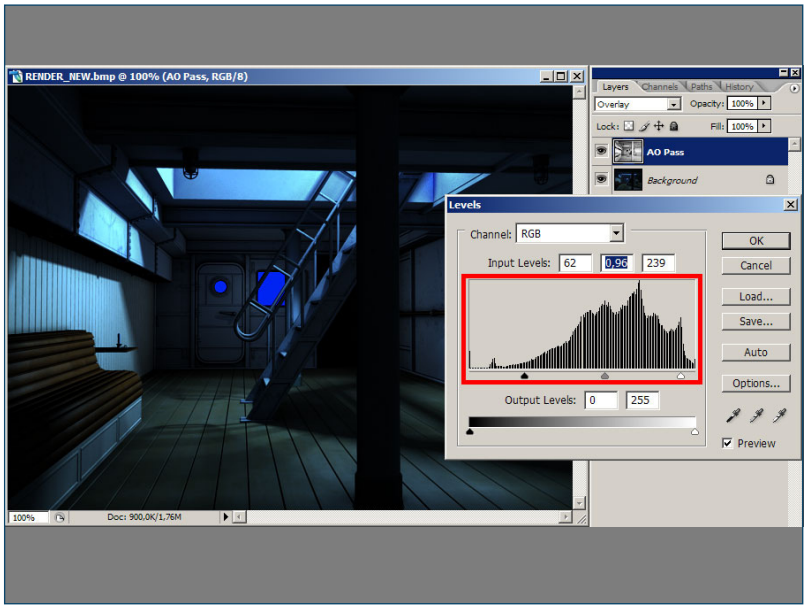


Fig 18

18. Change the blending mode for the AO pass to Overlay (Fig18).

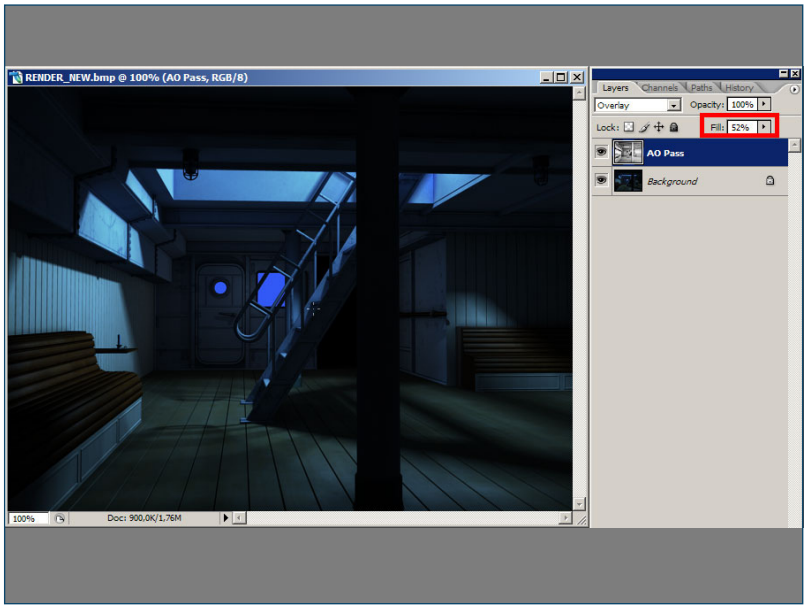
19. Use the Levels tool to adjust the levels until you are happy with overall look (Fig19).

Fig 19



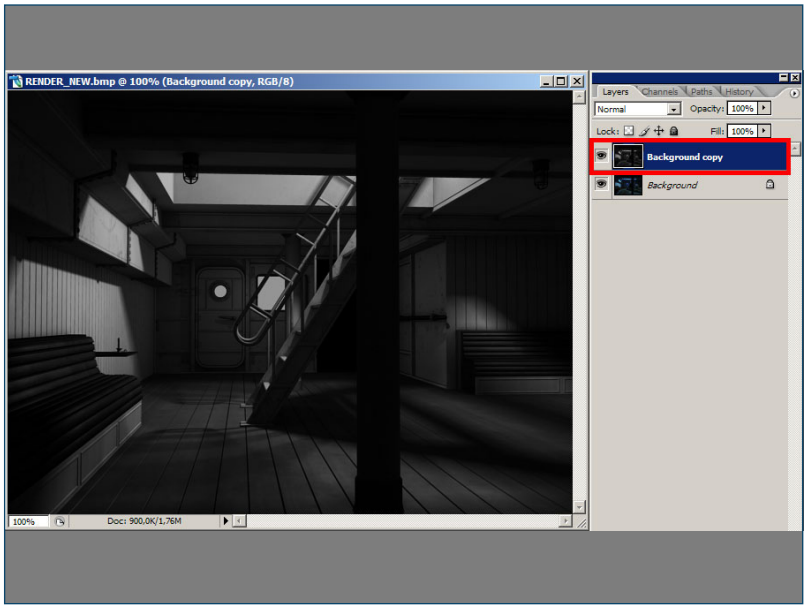
20. Lower the Fill value to 52% (Fig20).

Fig 20



21. Collapse the two layers together and create a copy of the Background layer. Desaturate it (Fig21).

Fig 21



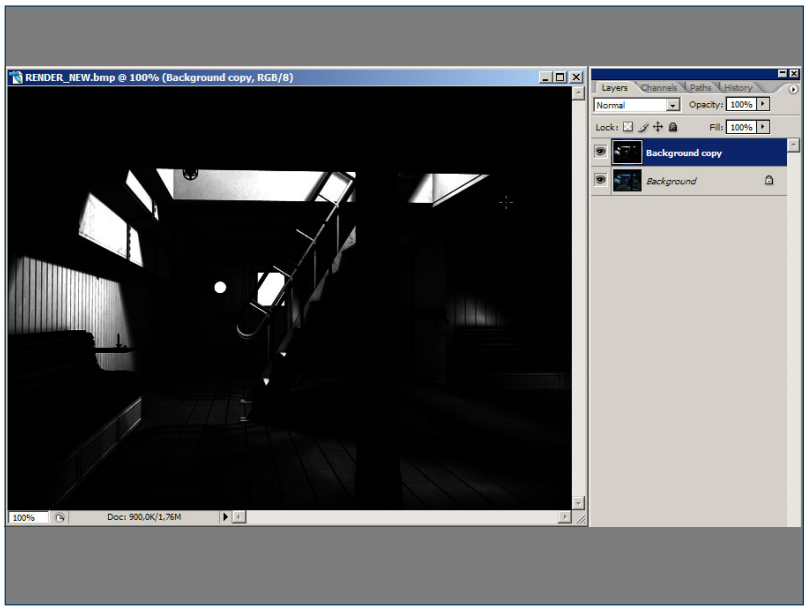


Fig 22

22. Adjust the Levels to expose the brightest areas (Fig22).

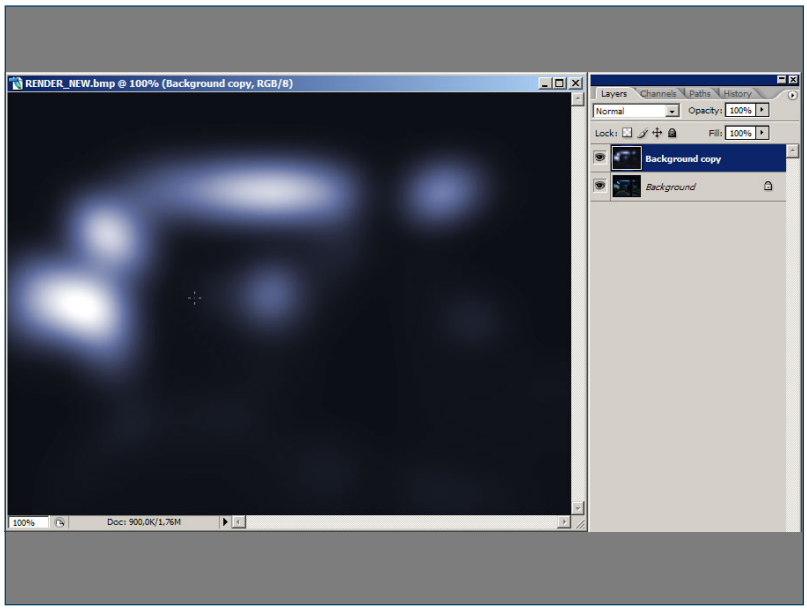


Fig 23

8VH WKH *DXVVLDQ %OXU ¿OWHU and then change its colour to something blueish (Fig23).

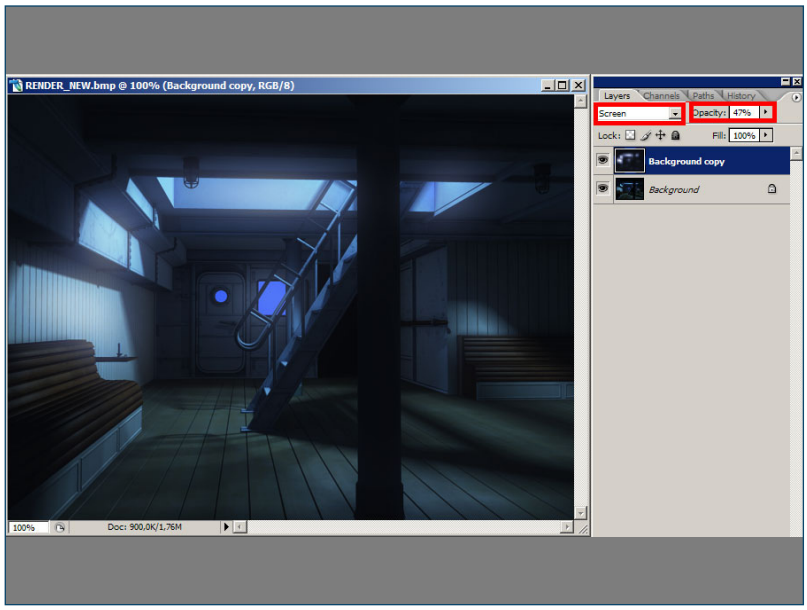
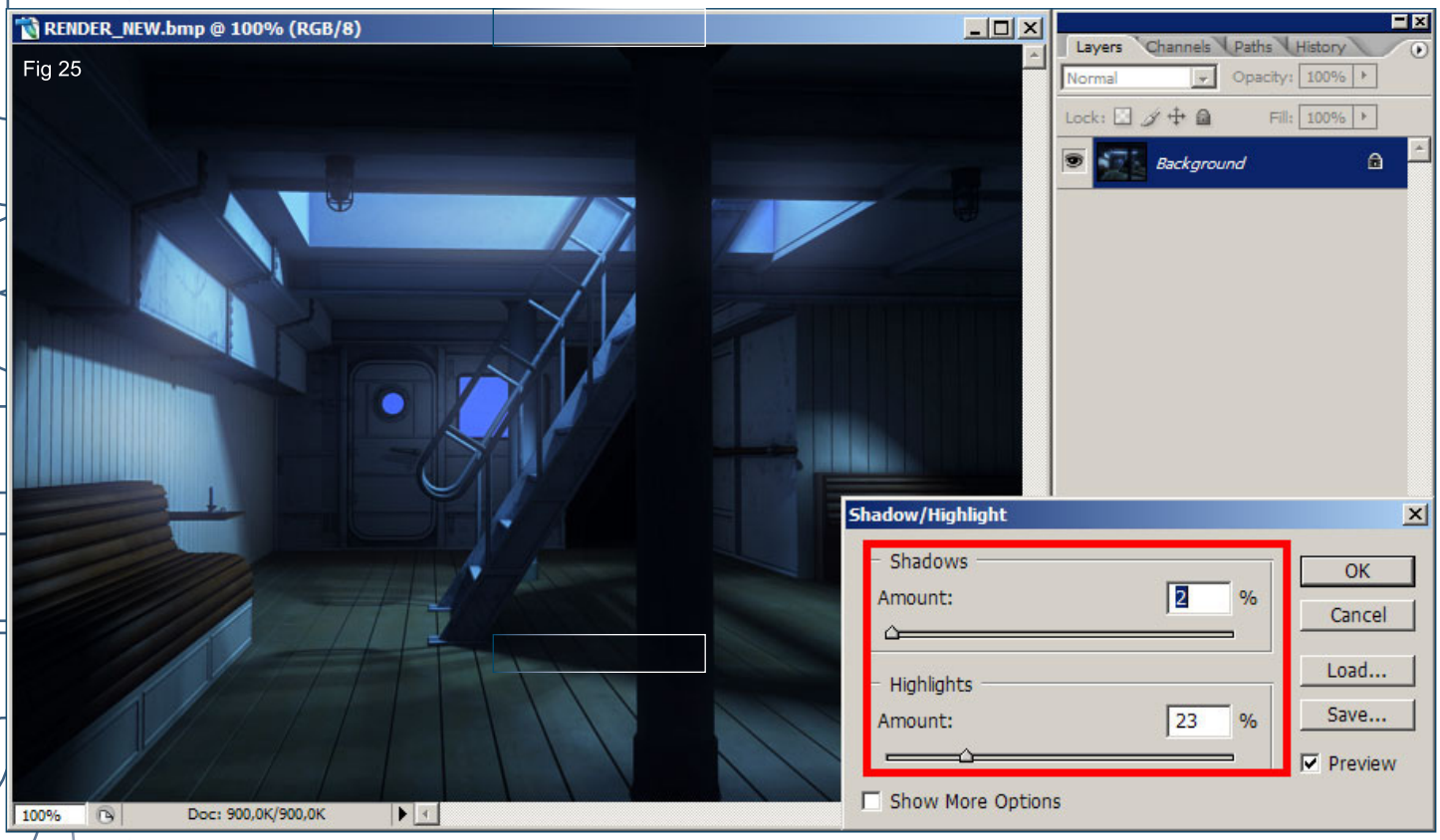


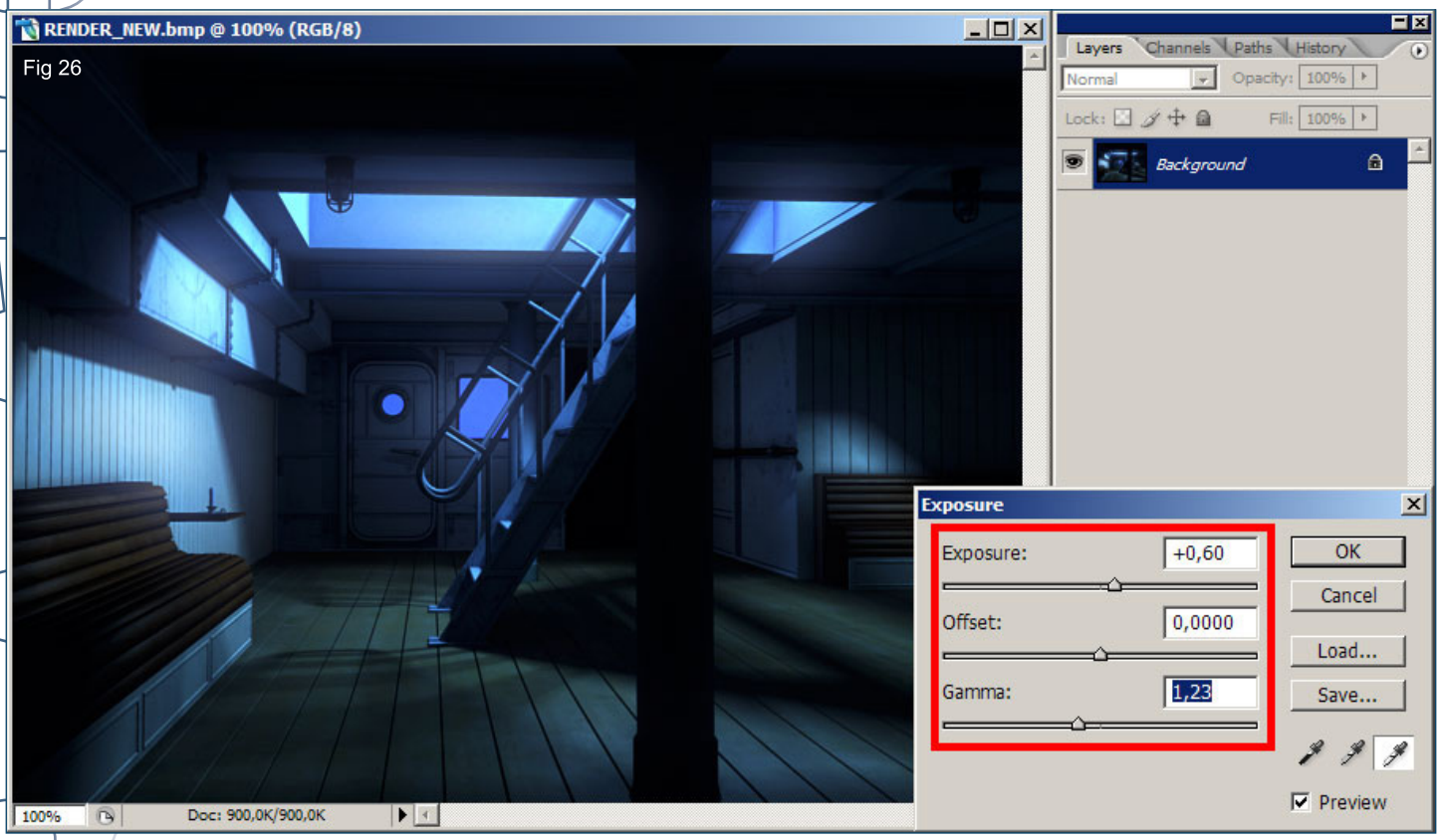
Fig 24

24. Change the blending mode to Screen and the Opacity value to about 47% (Fig24).



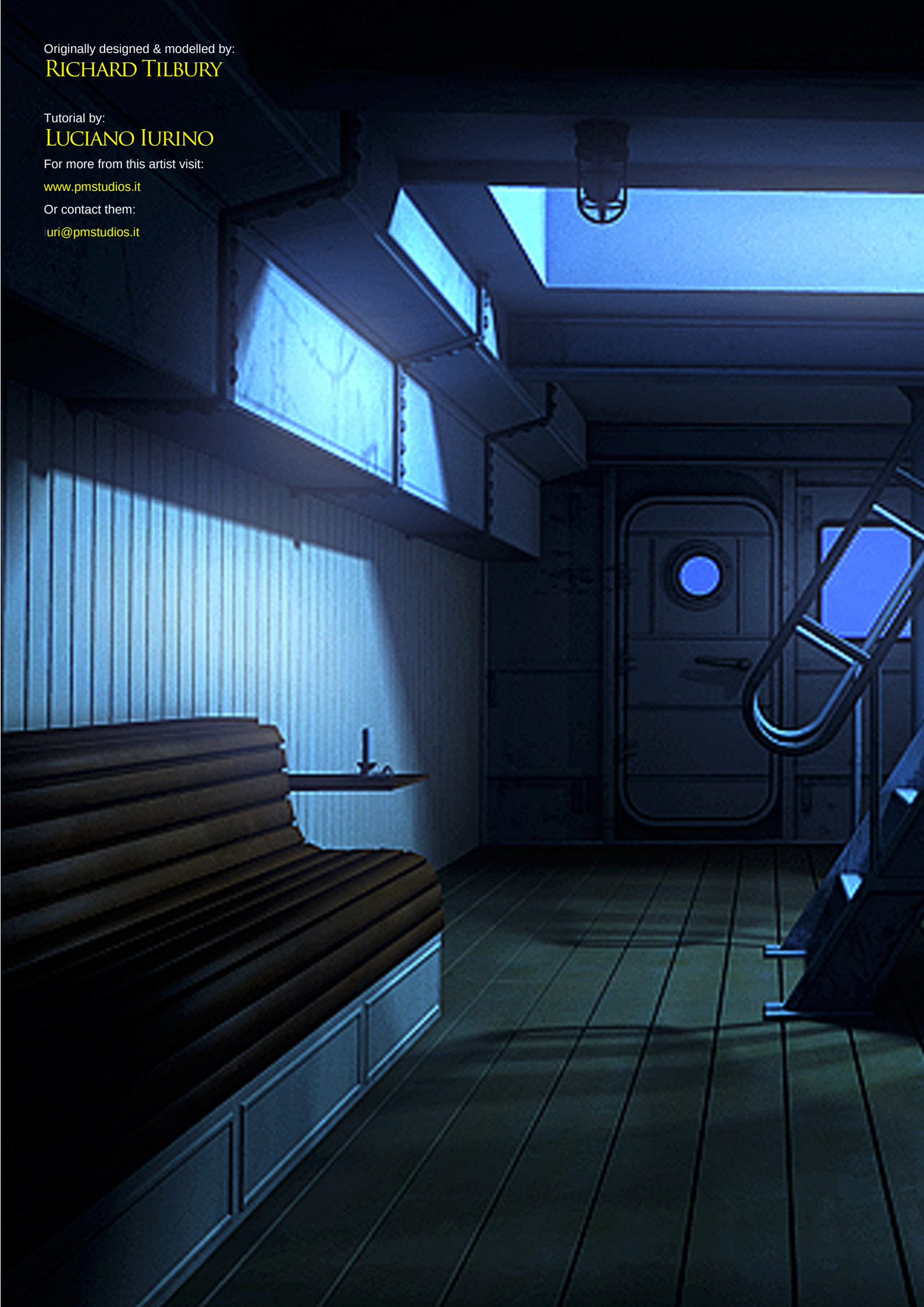
25. Flatten the two layers together and use the Shadow/Highlight tool to improve the mood of the picture (Fig25).

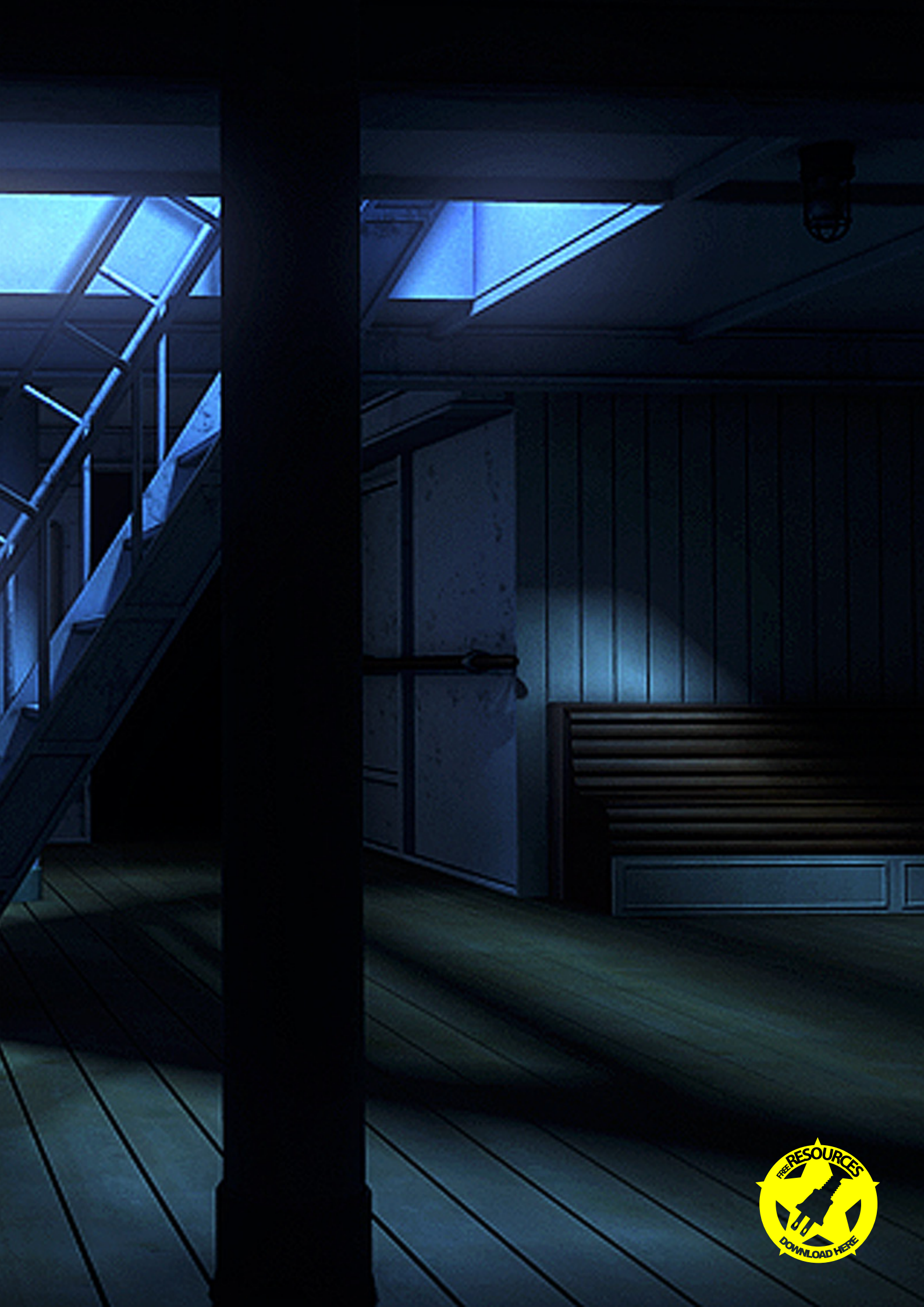
$OVR XVH WKH ([SRVXUH WRR (Fig26).



Originally designed & modelled by:
RICHARD TILBURY

Tutorial by:
LUCIANO IURINO
For more from this artist visit:
www.pmstudios.it
Or contact them:
iuri@pmstudios.it

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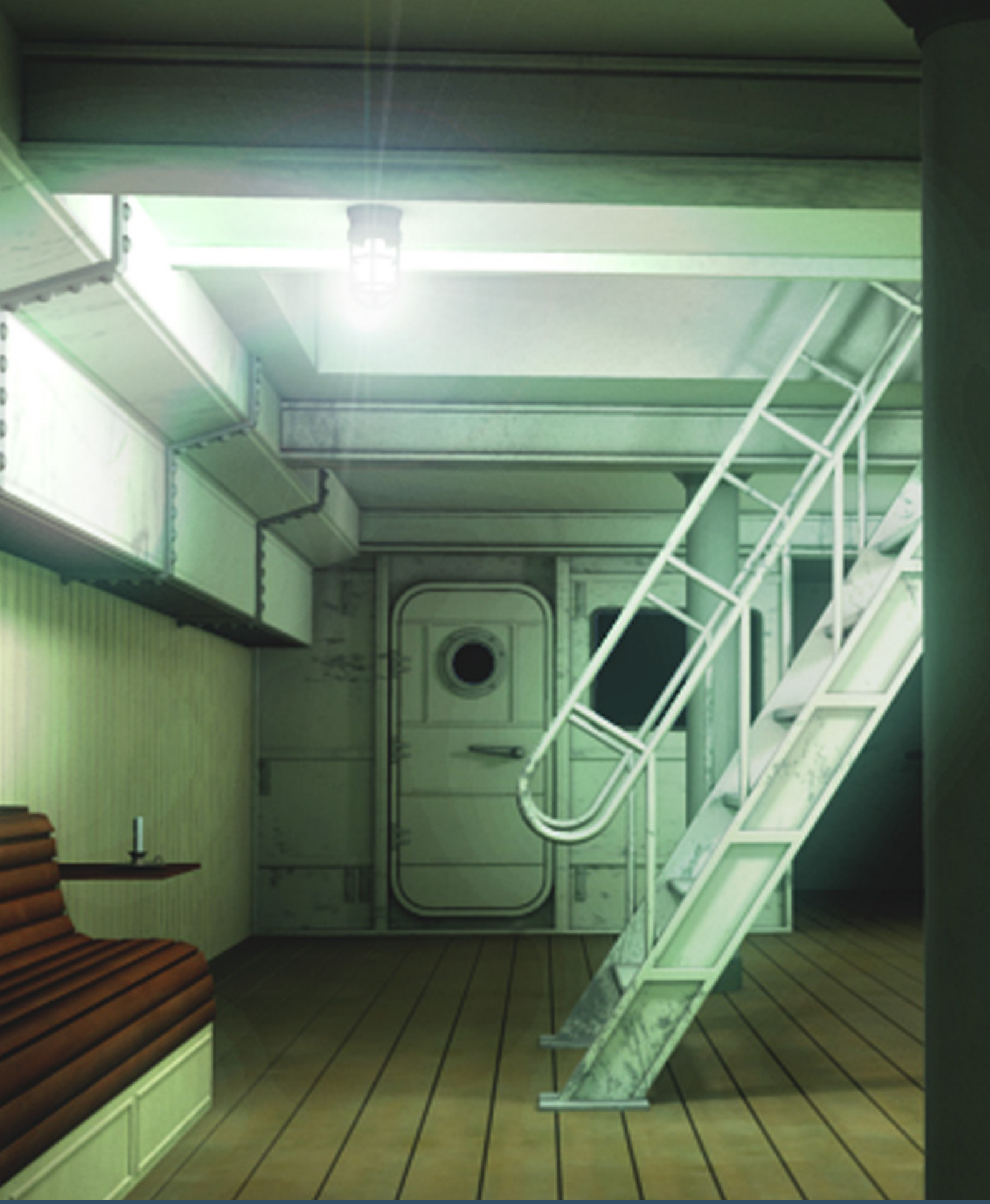


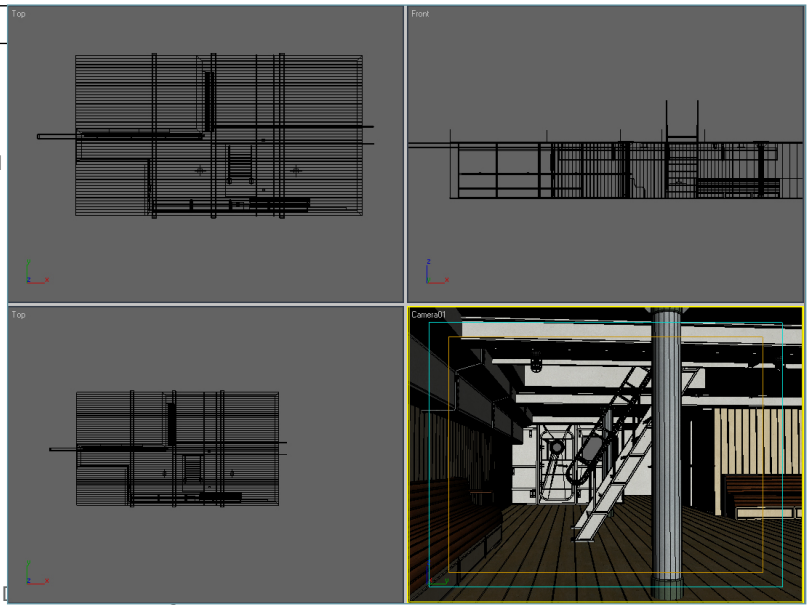
Chapter 04

Artificial Interior Lighting
Electrical

3ds max

ARTIFICIAL INTERIOR LIGHTING ELECTRICAL

Fig 01

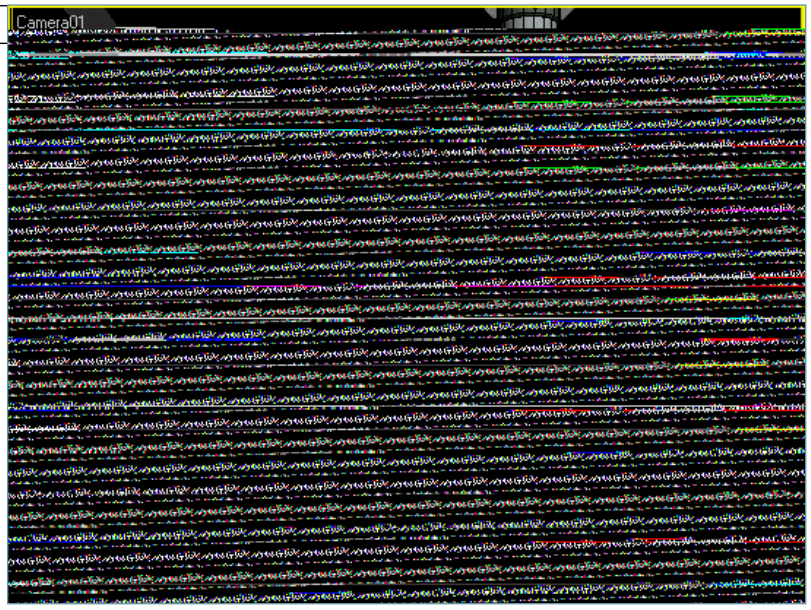


7KLV &KDSWHU ZH¶OO VHH KRZ WR FUHDWH DQ DUWL¿FLDO OLJKW ZRUNV lighting situation for our ship cabin scene. As usual, we'll use 3ds Max and Mental Ray.

Before we can start, we need a little information about how artificial light works; a quick search in Google for reference images; you'll notice that large spaces are lit by a fair number of light bulbs, which usually give general lighting a strong, greenish component.

01. Open the ShipCabin_Part4_Start.max VFHQH ¿OH GRZQORDG FDQ EH IRXQG this tutorial; click on the Free Resources logo) (Fig01).

Fig 02



02. The two main light sources will be the light bulbs on the ceiling (Fig02).

Fig 03

03. Since we'll be placing the lights right in the bulbs, we need them not to cast any shadows. Select the three objects (the light bulb, the guard and the base) and right click on them. In the menu that appears, click on Object Properties. Then disable the Cast Shadow option in the Rendering Control area (Fig03).

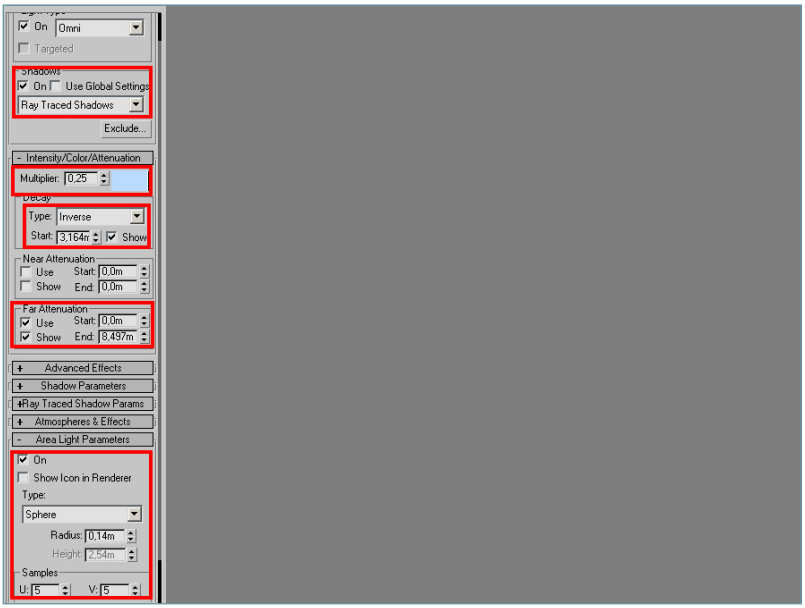


Fig 10

10. Modify the light parameters as shown in Fig10. The important thing here is to lower the intensity of the light (to about 0,25), and give it a darker colour (Fig10).

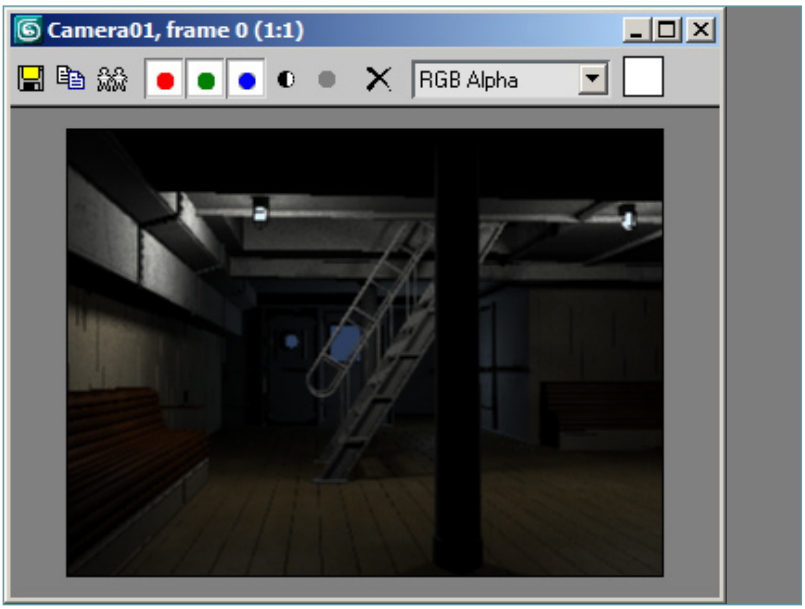


Fig 11

11. Render the scene again. Now there's some light in the back, too (Fig11).

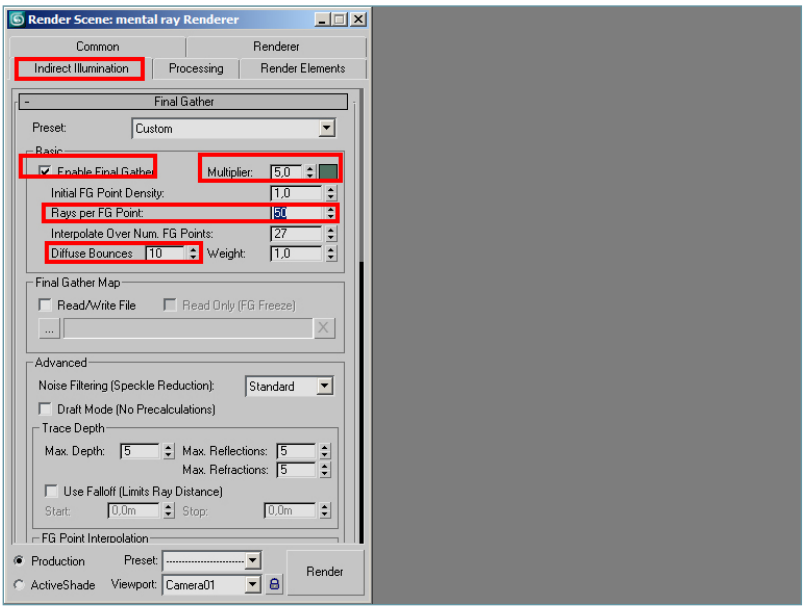
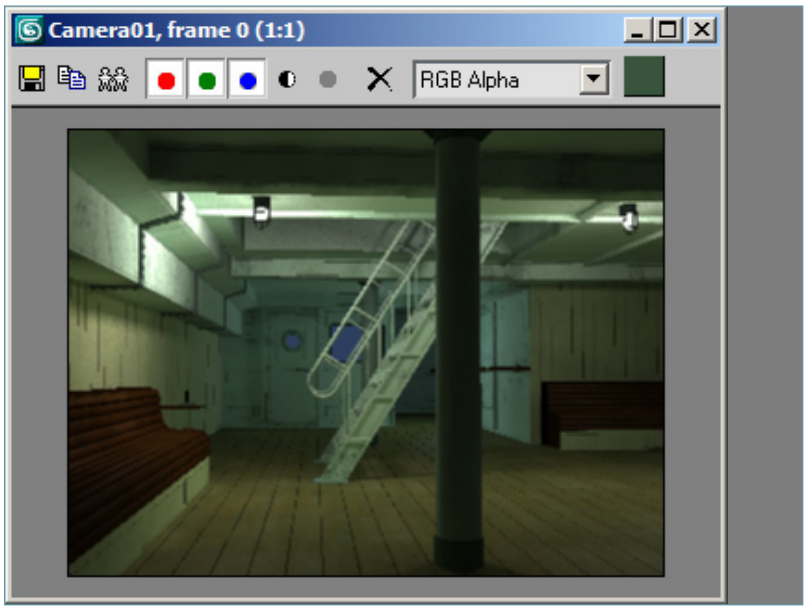


Fig 12

12. Open the Rendering panel and switch to the Indirect Illumination tab. Enable Final Gather and set its Multiplier to 5. Also change its colour to a fairly dark green. Set the Bounces to 10 and leave the Rays to 50 (this is just a test rendering and we'll increase the quality later) (Fig12).

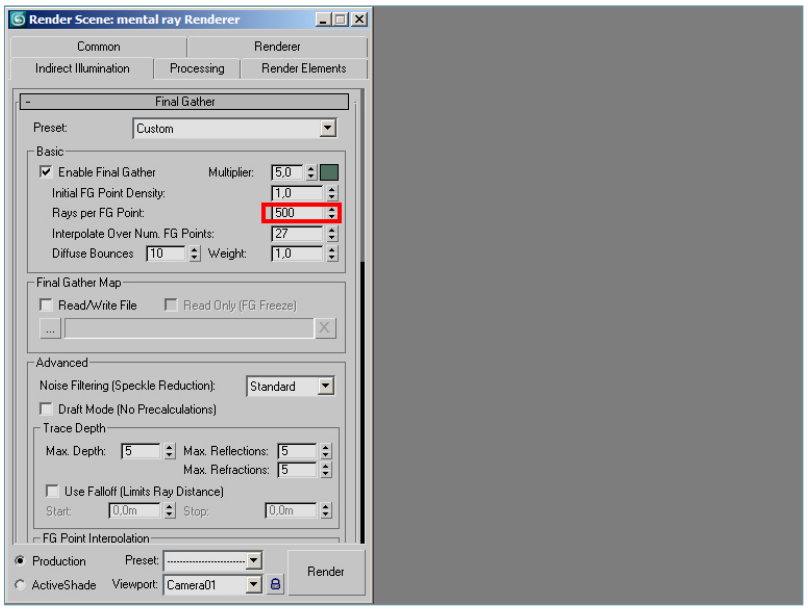
13. Render the scene again. Now there's much more light in the scene (Fig13).

Fig 13



14. Now we can increase the Rays to 500 to have a better quality for the FinalGather solution (Fig14).

Fig 14



15. Open the Rendering panel again and switch to the Renderer tab. Set the Minimum/Maximum values to 16/64 and the Filter type to Mitchell. Also set the values for Spatial Contrast to 0,02 (Fig15).

Fig 15

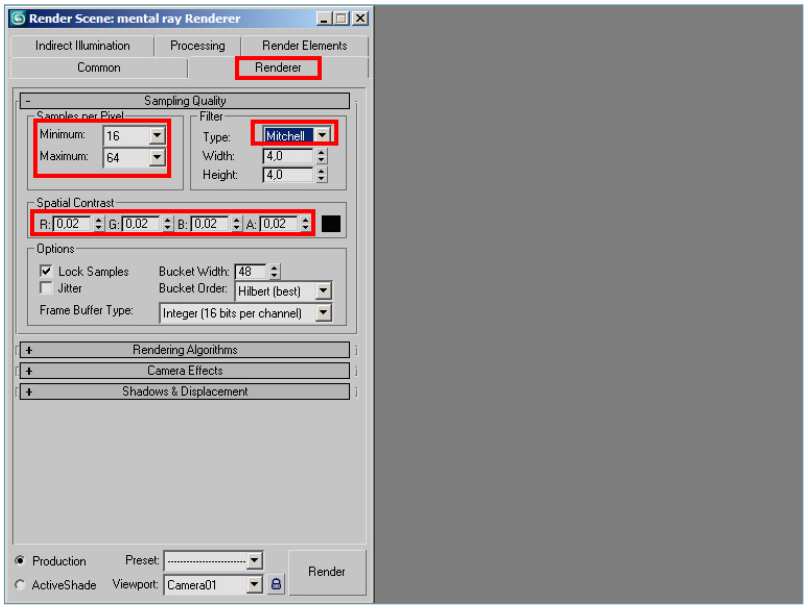


Fig 16

16. Now we can render the scene with full quality and save it as a picture (Fig16).

Fig 17

17. As usual, we also need an Ambient Occlusion pass to composite it over the original render in Photoshop. Open the ShipCabin_3DUW B$2 PD[VFHQH ¿OH ,Q)LJ the AO shader that was created and assigned to every object in the scene.

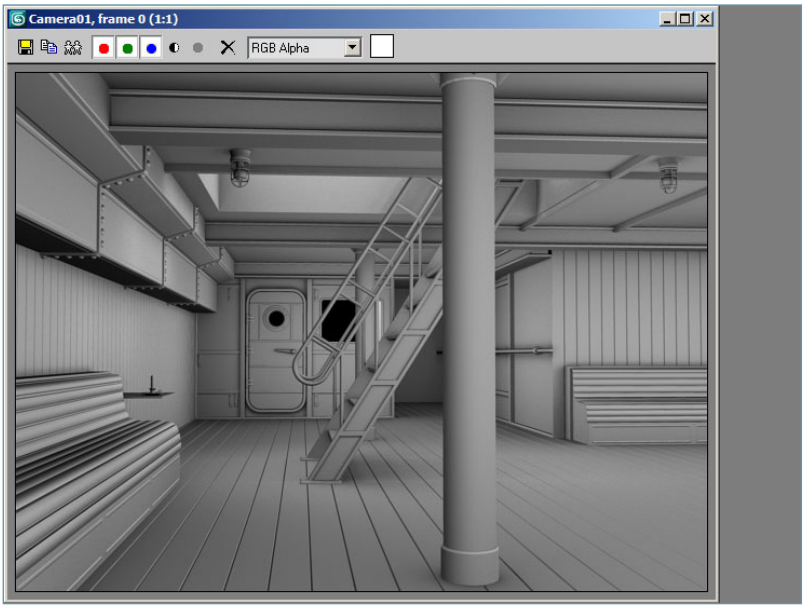
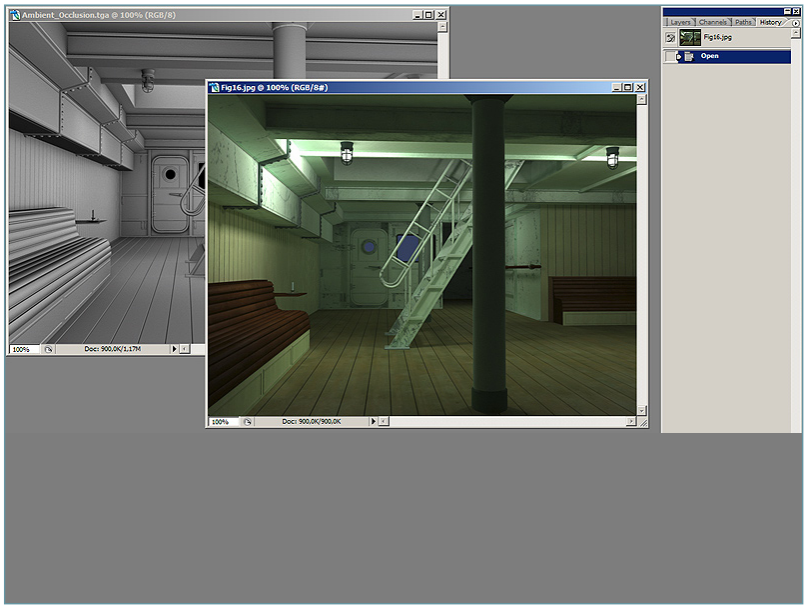


Fig 18

18. Render the AO scene and save it as a picture, too (Fig18).

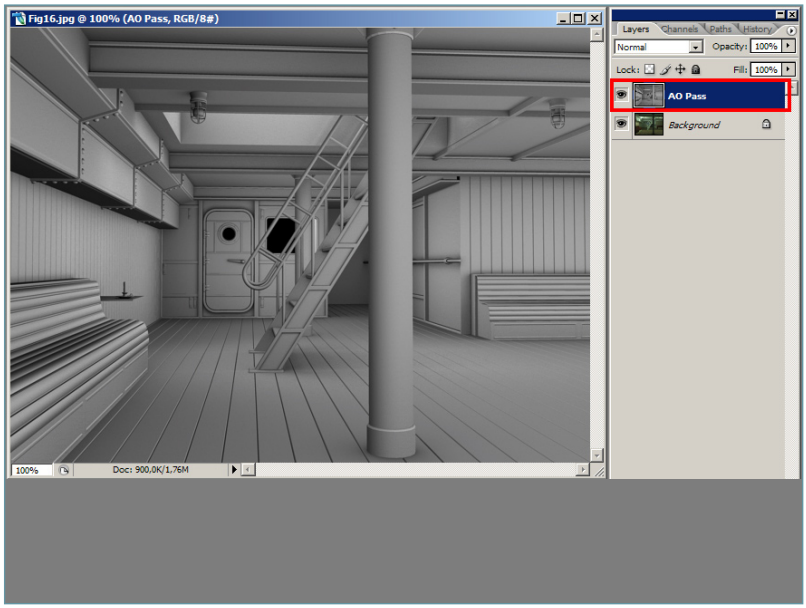
19. Open both pictures (the original render and the AO pass) with Photoshop (Fig19).

Fig 19



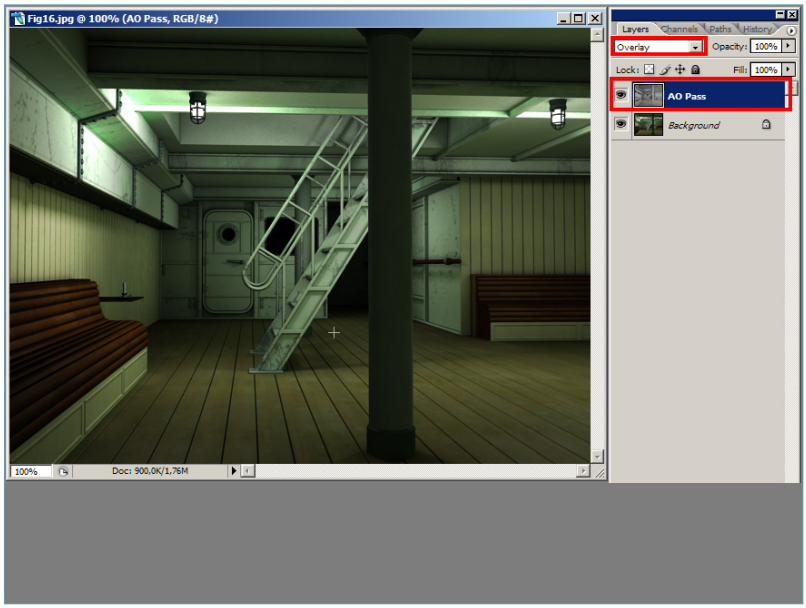
20. Select the AO pass, copy it and paste it over the original rendered image (Fig20).

Fig 20



21. Change the AO pass layer's blending mode to Overlay (Fig21).

Fig 21



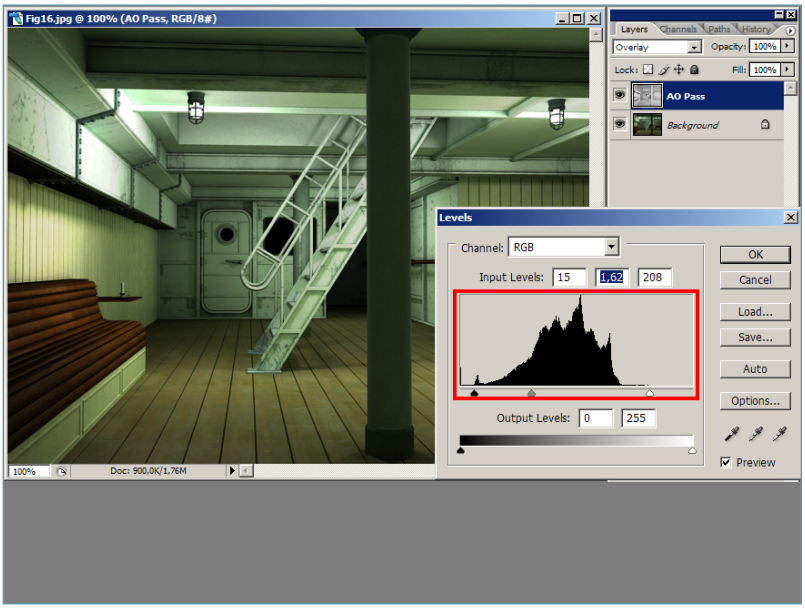


Fig 22

22. Use the Levels tool to adjust the contrast of the AO pass over the original image (Fig22).

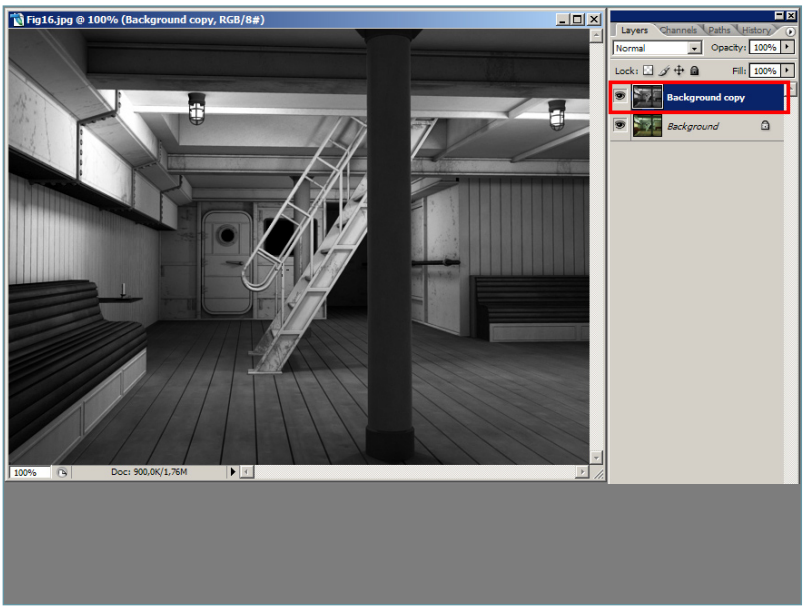


Fig 23

23. Flatten all the layers together, then create a copy of the Background layer and desaturate it (Fig23).

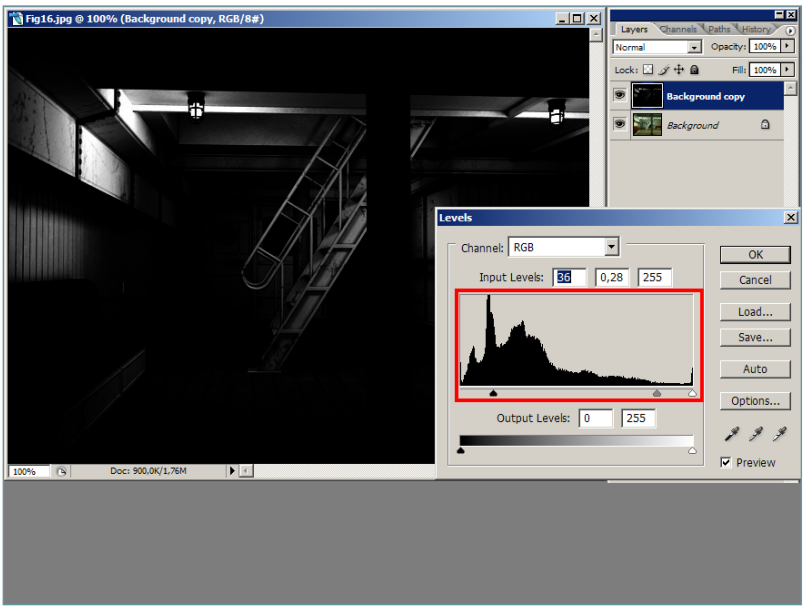
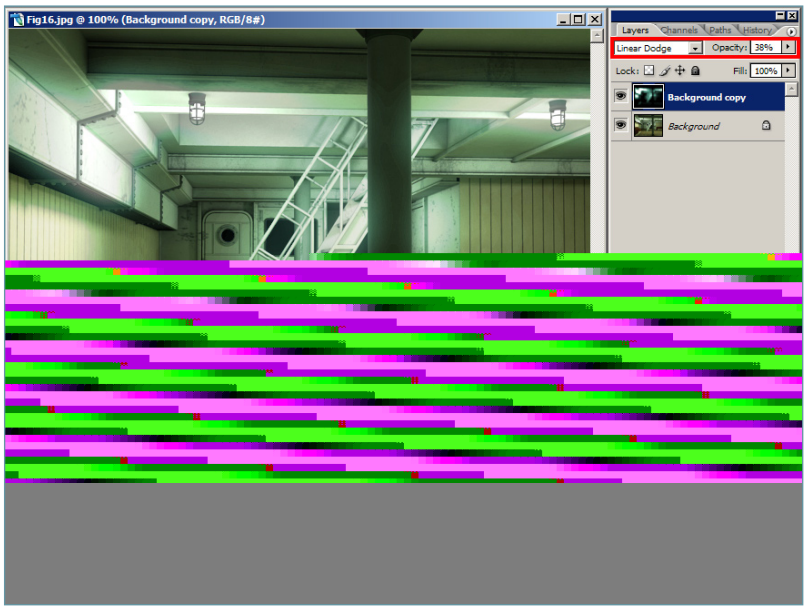


Fig 24

24. Adjust the Levels to expose the areas with more light (Fig24).

25. Change the blending mode to Linear Dodge and set the Opacity to 38% (Fig25).

Fig 25



26. Flatten all the layers together. Create another blank layer and fill it with black. Apply a Lens Flare filter as shown. Move the flare over the light bulb to the left (Fig26).

Fig 26

27. Change the Blending mode for the Flare layer to Screen and set its Opacity to about 90% (Fig27).

Fig 27

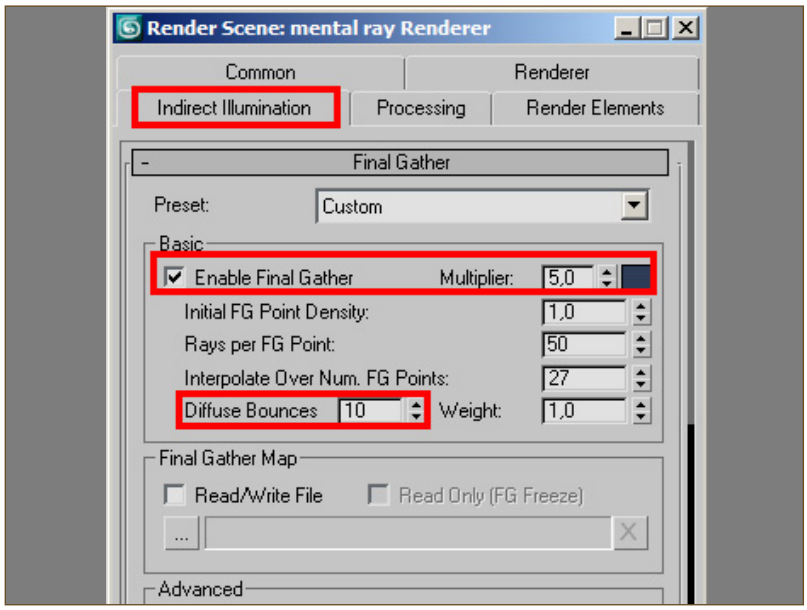


Fig 04

04. Set Mental Ray as main renderer, and open the Rendering panel. Switch to the Indirect Illumination tab, enable Final Gather and set the Multiplier to 5. Also, set the Multiplier color to a dark blue and the Bounces to 10. (Fig4)

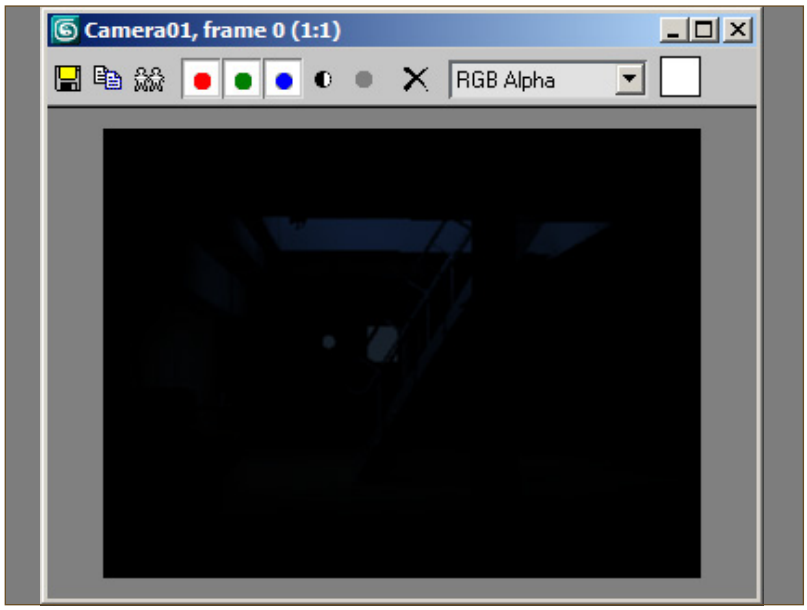


Fig 05

05. Render the scene. Now we have a basic night lighting. (Fig05)

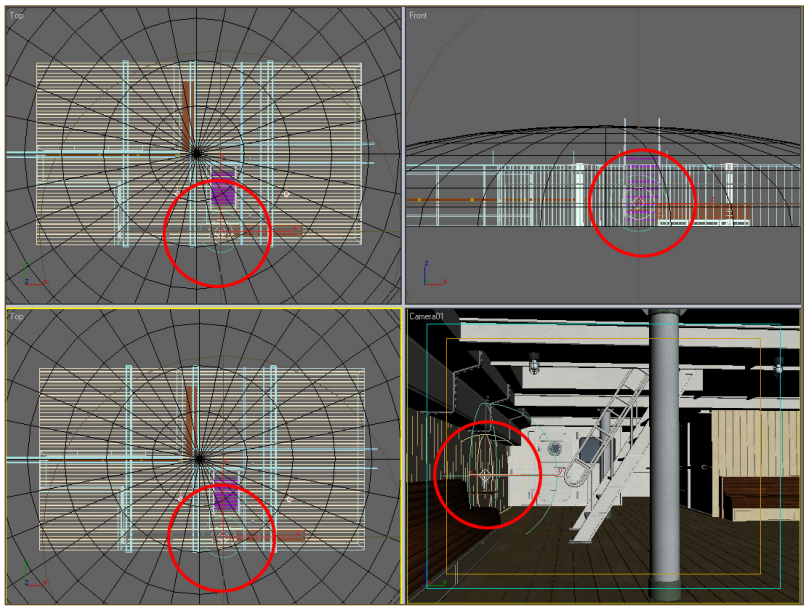
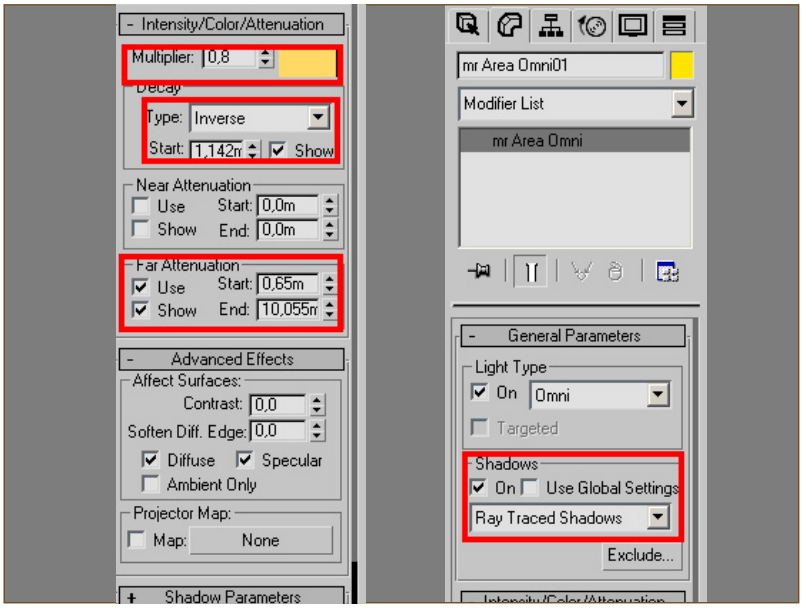


Fig 06

/HW¶V FUHDWH WKH ¿UVW FDQ mr Area Omni light and position it just above the candle, on the left of the scene. (Fig06)

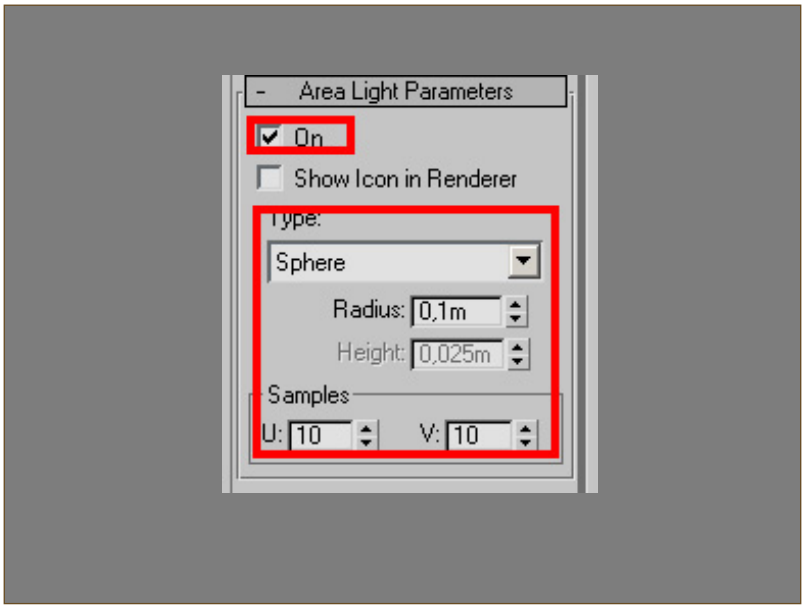
07 .Modify the light's parameters as shown in Fig07. Enable Shadows and make sure that it's set to Ray Traced. Set the Multiplier to 0,8 and the color to a bright yellow/orange. Set the Decay type to Inverse and the Start value to about 1,4. Also, copy the parameters for Attenuation from Fig07.

Fig 07



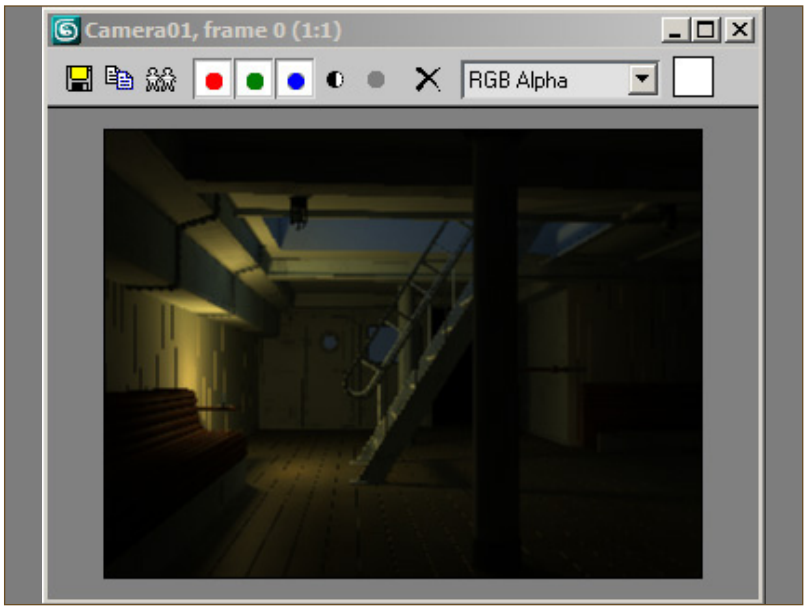
08. In the Area Light Parameters rollout, enable area shadows , set the type to Sphere, the radius to 0,1 and U/V samples to 10/10. (Fig08)

Fig 08



09. Render the scene. The candle lighting now looks pretty good. Now we need to add the other two candle lights. (Fig09)

Fig 09



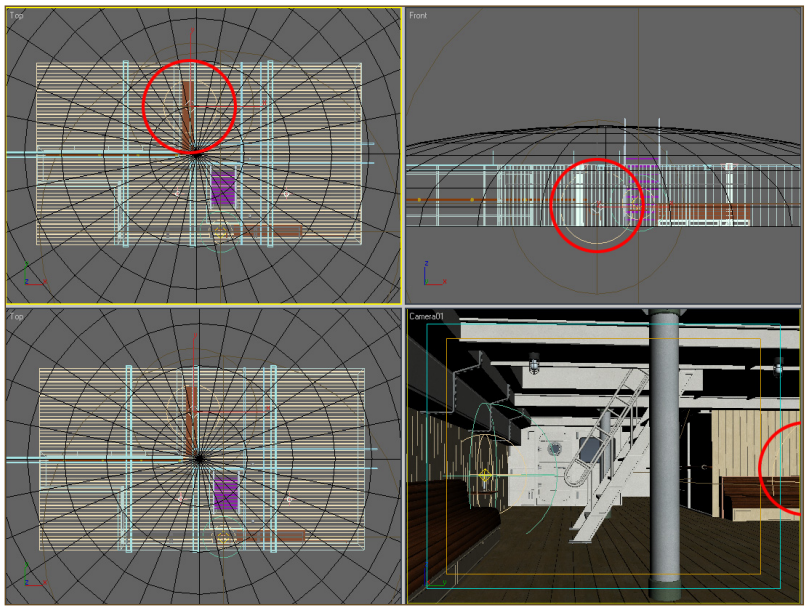


Fig 10

10.Create another mr Area Omni and position it near the seat on the right of the scene. Make sure that it's just out of the view. (Fig10)

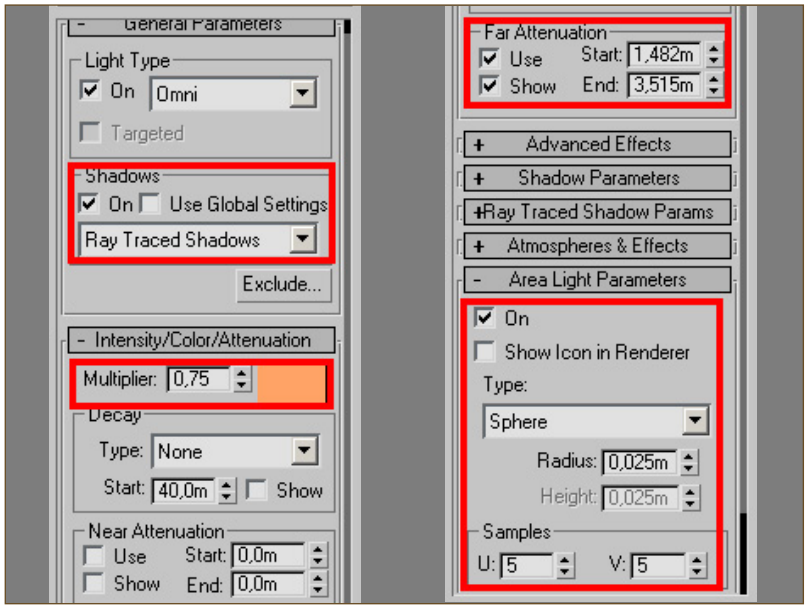


Fig 11

11.Modify its parameters as shown in Fig11. The important thing here is the color (a darker orange) and the Multiplier (0,75). Make it cast shadows (Ray Traced), enable area shadows and copy the parameters for the Attenuation from Fig11.

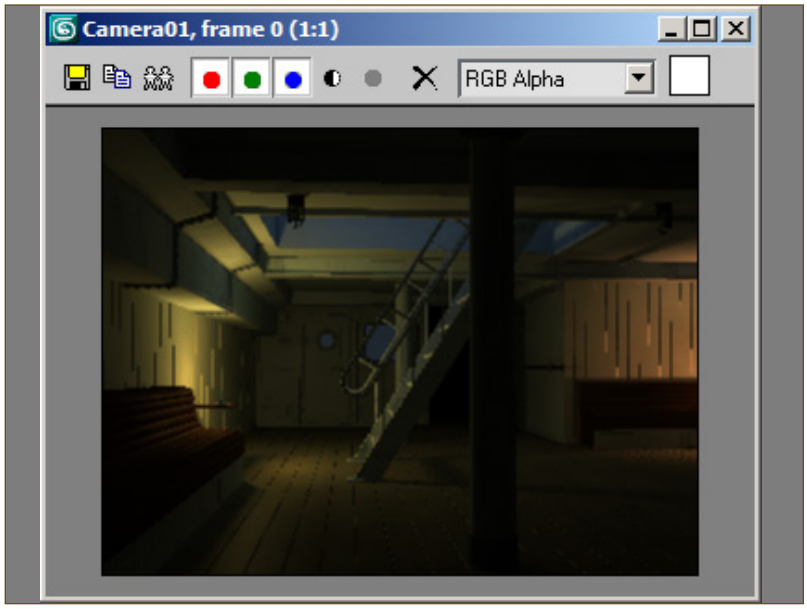
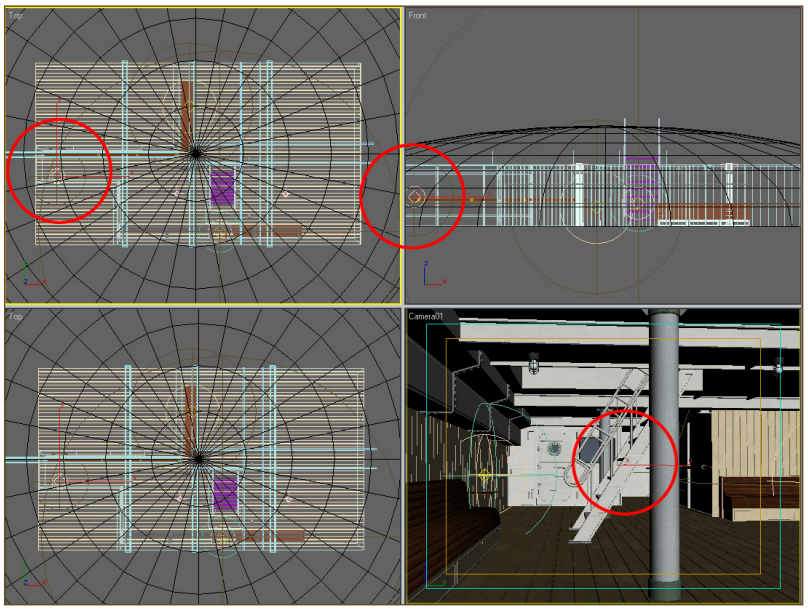


Fig 12

12. Render the scene again to check this new light, too. (Fig12)

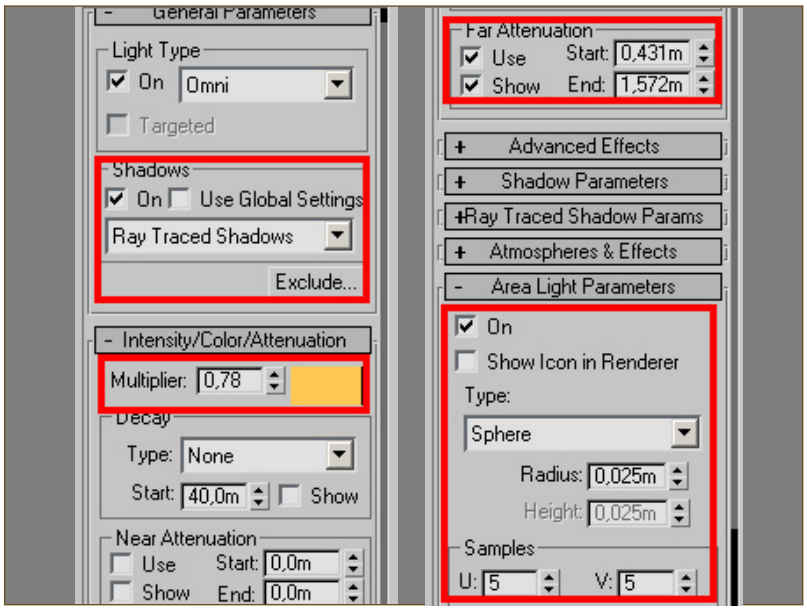
13. Now create a third mr Area Omni and position it in the back of the room, just behind the stairs. (Fig13)

Fig 13



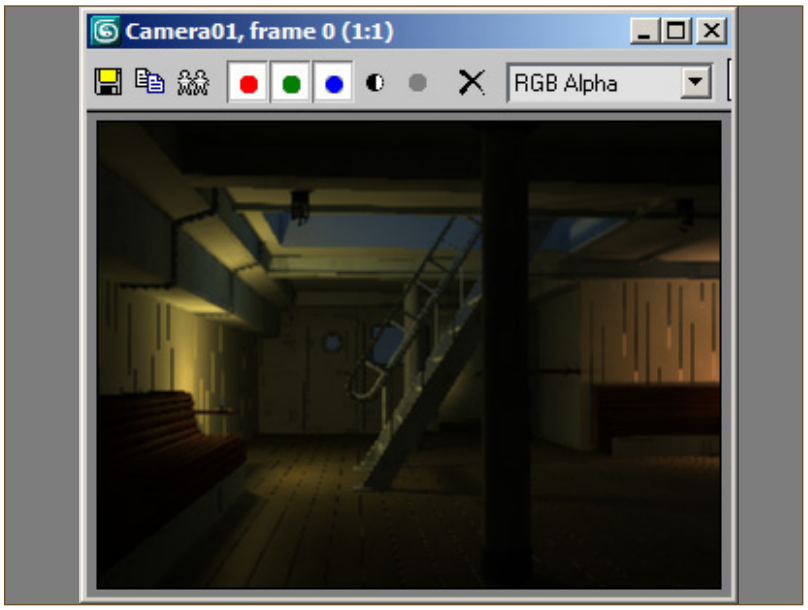
14. Copy the parameters for this light from Fig14.

Fig 14



15. Render the scene again. (Fig15)

Fig 15



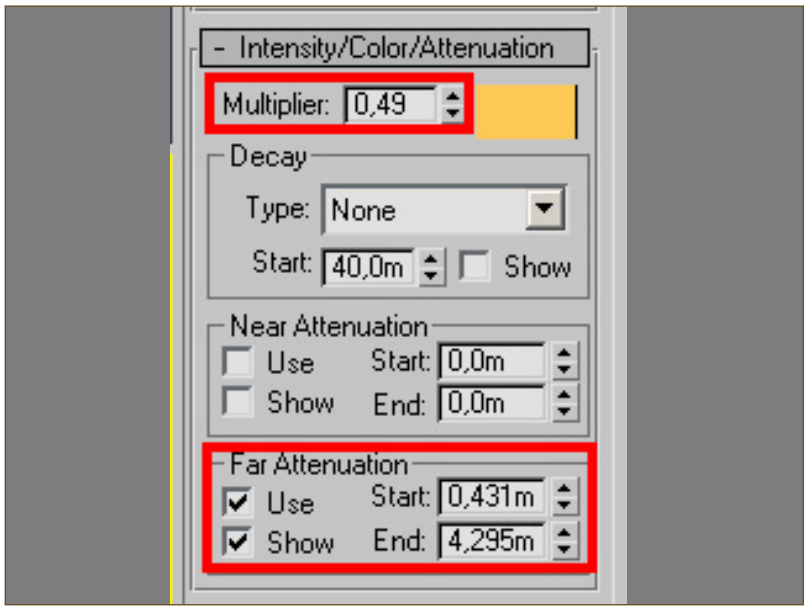


Fig 16

16. The back light is too low, so we need to increase its multiplier and set a brighter color. (Fig16)

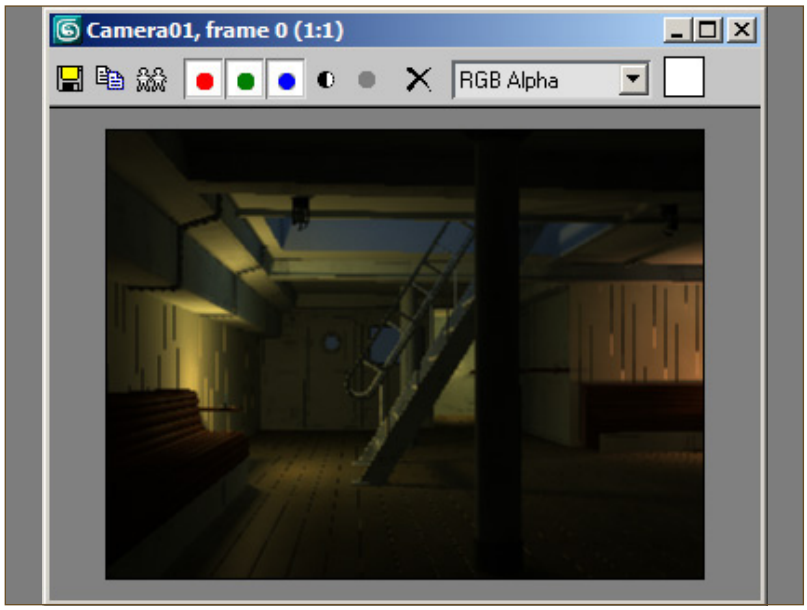


Fig 17

17. Render the scene. Now the back light seems to be ok. (Fig17)

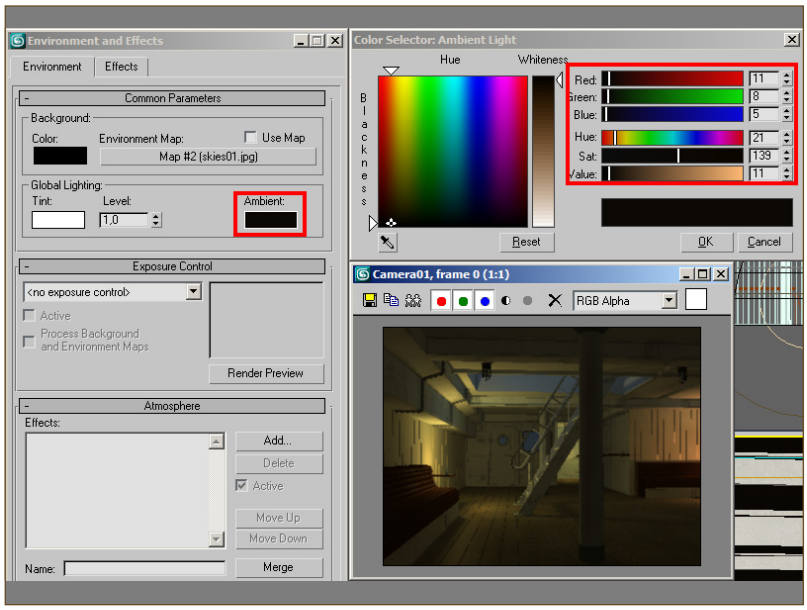
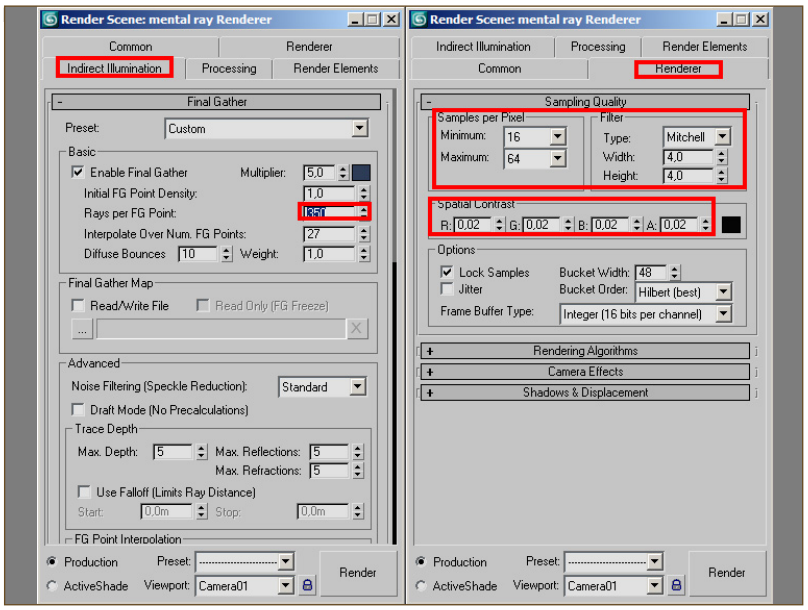


Fig 18

18. The room is still too dark, so we need to increase the general ambient light. Open the Environment panel and set the Env. Color as shown in Fig18. Render the scene again.

1RZ ZH FDQ VHW WKH SDUDPHWHUV rendering. Open the Rendering panel and switch to the Indirect Illumination tab. Set the Rays value to 350. Switch to the Renderer tab and copy the parameters for the sampling quality from Fig19.

Fig 19



,Q)LJ \RX FDQ VHH WKH ¿QDO UHQ

Fig 20

image. Save it as a picture.

21. We also need an Ambient Occlusion pass to composite it over the original rendering. This will help to enhance the details of the rendering. Open the 3DENV_Part5_Candle_AO.max scene ¿OH ,Q)LJ \RX FDQ VHH WKH SDUDPH AO shader that was created and assigned to every object in the scene.

Fig 21

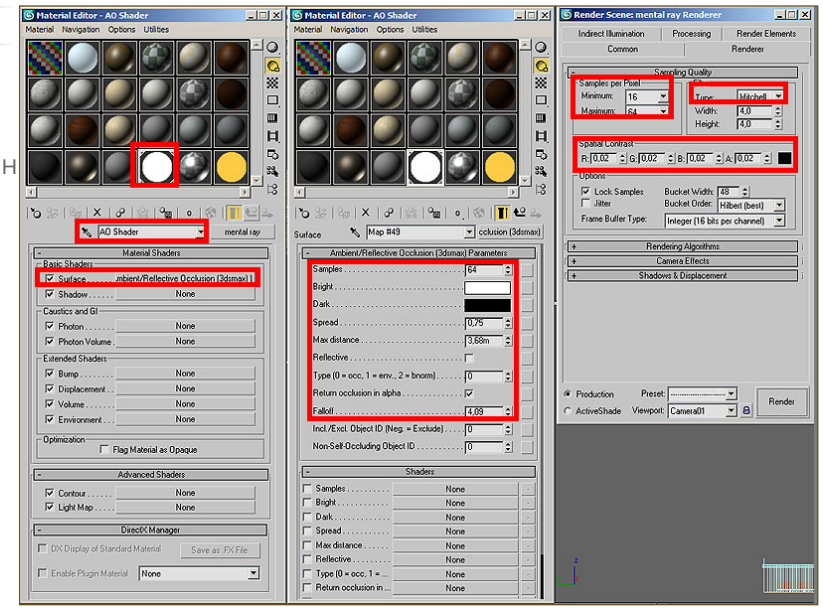


Fig 22

22. Render the AO pass and save it as a picture, too. (Fig22)

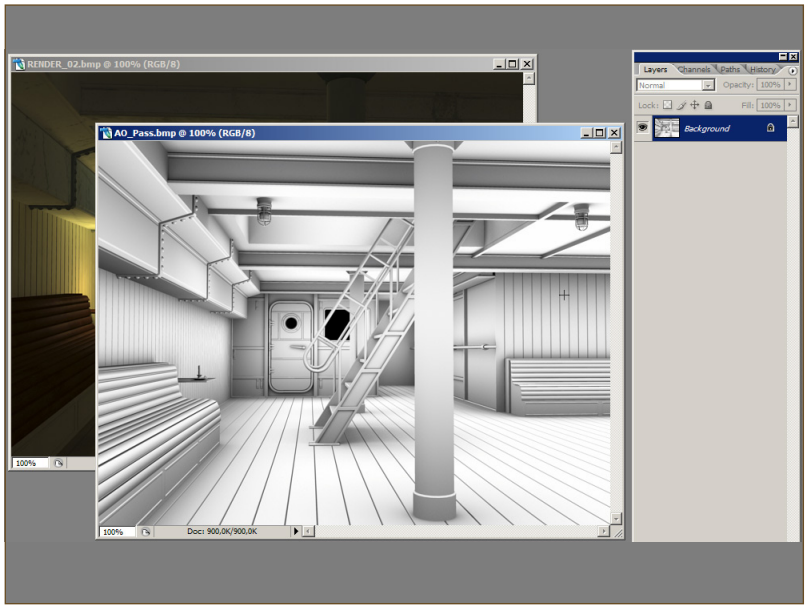


Fig 23

23. Now open both the original rendering and the AO pass with Adobe Photoshop. (Fig23)

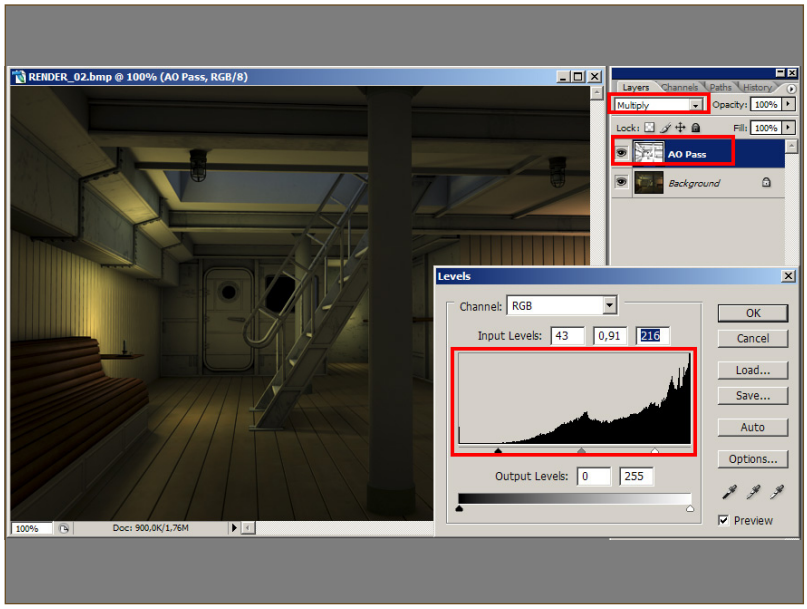
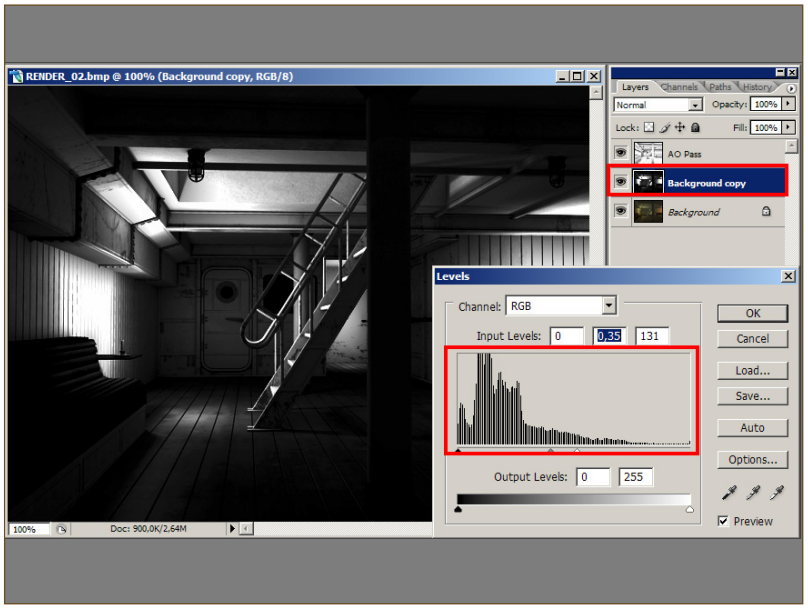


Fig 24

24. Select the AO pass, copy it, and paste it over the original rendering. (Fig24) Change its blending mode to Multiply and use the Levels tool to adjust its contrast.

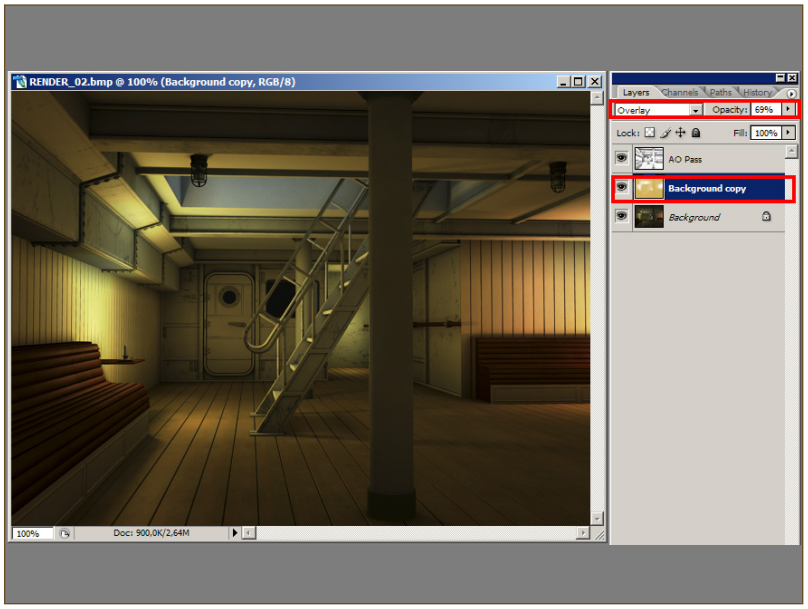
25.Select the Background (original rendering) layer and duplicate it. Desaturate it and adjust its Levels to expose the brightest areas. (Fig25)

Fig 25



26.Apply a fair amount of Gaussian blur to this new layer; use the Hue & Saturation tool to colorize it with a yellow/orange color and change its blending mode to Overlay. Also, decrease its Opacity value to about 69%. (Fig26)

Fig 26



27.Flatten all the layers together. If you wish you can use the Exposure tool to improve the H[SRVXUH RI WKH ¿QDO LPDJH)LJ

Fig 27

Richard Tilbury

Tutorial by:

Luciano Iurino

For more from this artist visit::

www.pmstudios.it

Or contact them:

iuri@pmstudios.it

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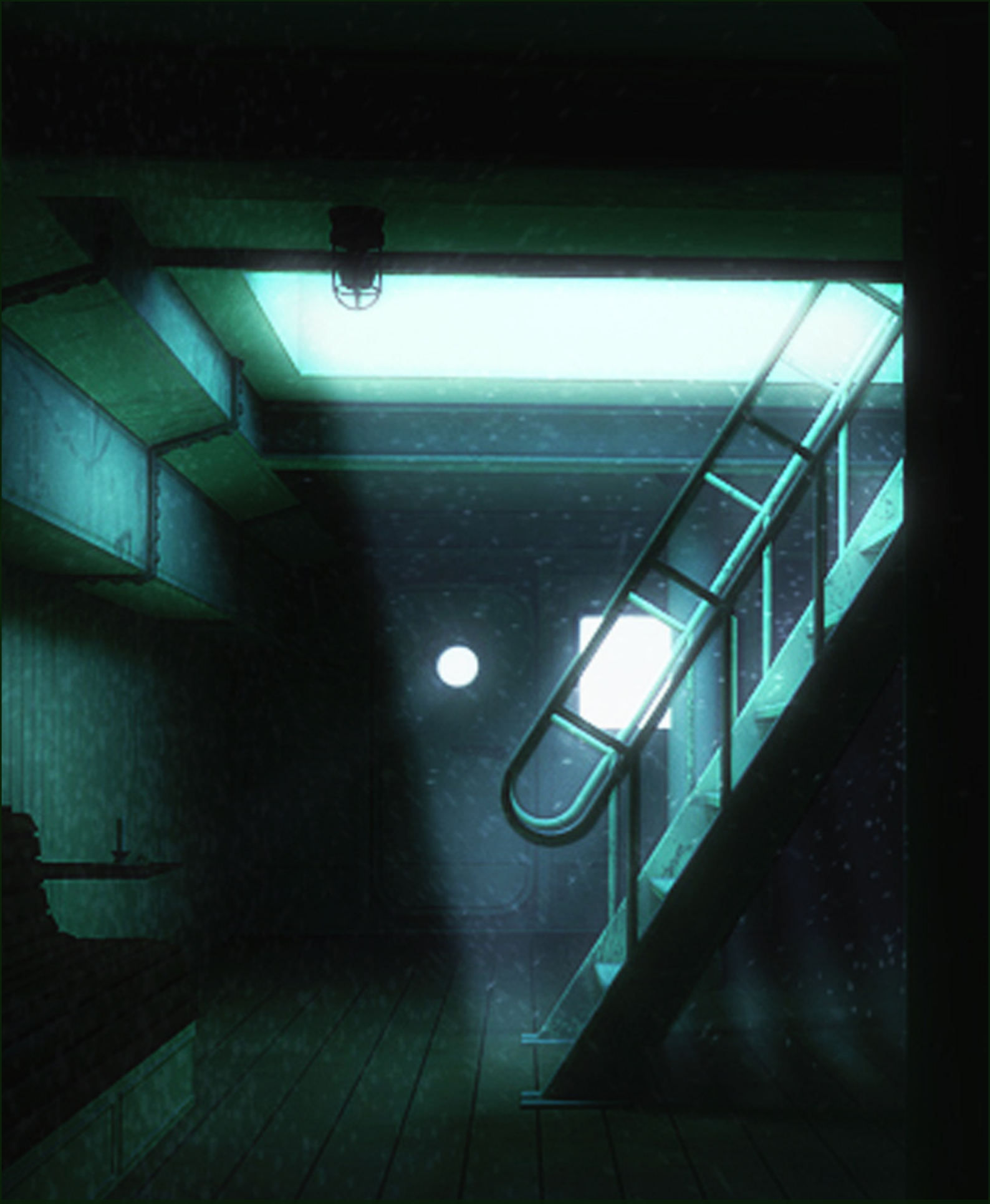


Chapter 06

Artificial Interior Lighting Underwater

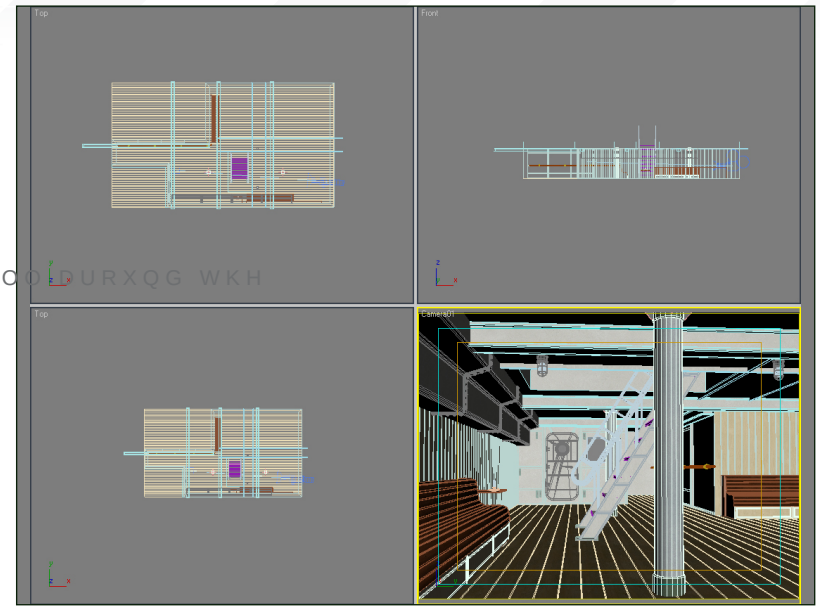
3ds max

ARTIFICIAL INTERIOR LIGHTING UNDERWATER

In this last 3D Environment tutorial we'll set up a nice underwater scene for the ship cabin. Just imagine it sunk and laying on the ocean bed. <RX FDQ ¿QG D ORW RI UHIHUHQFHV DOO URXQG WKH web (for example, the "Titanic" movie) to see how light behaves underwater, and most of all the colours that you will need to use to give your scene more realism.

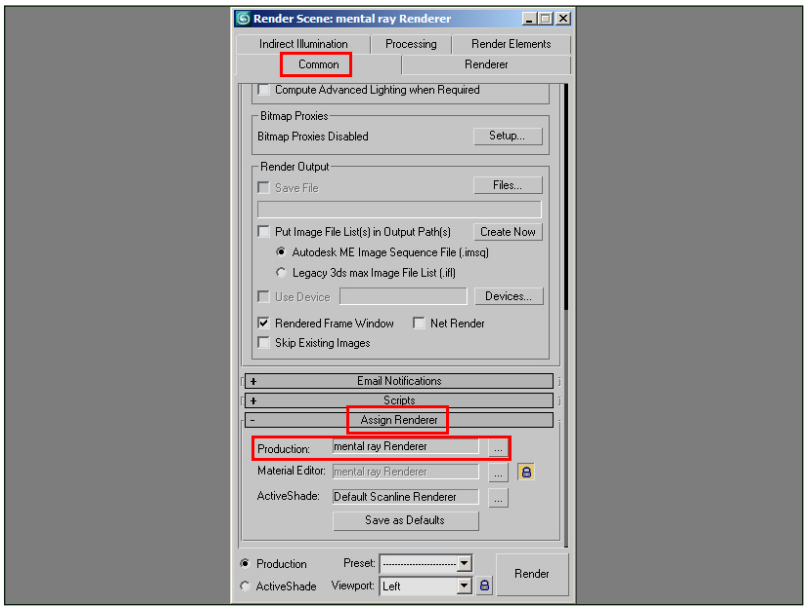
1. First of all, let's open the 3DENV_Part6_ 8QGHUZDWHU PD[VFHQH ¿OH)LJ

Fig 01



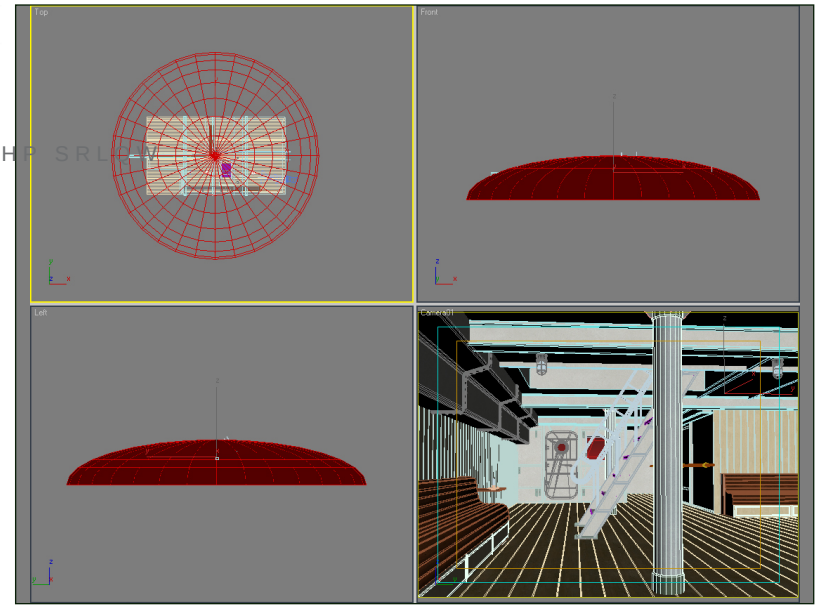
2. We need to set up a basic lighting, and then we can concentrate on obtaining a nice underwater scene. Open the Rendering panel (F10) and in the Common tab scroll down to the Assign Renderer rollout and assign mental ray Renderer as shown in Fig02.

Fig 02



3. Create a polygonal sphere, select its lower half and delete it. Select all the remaining SRO\JRQV DQG ÀLS WKHP WR PDNH WKHP SRLQW inward.

Fig 03



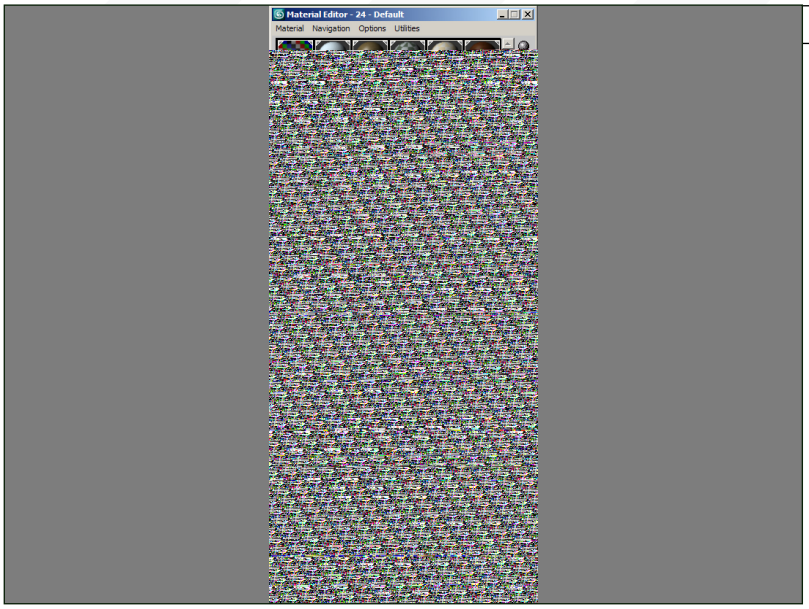


Fig 04

4. Open the Material Editor (M) and create a new Standard material of a blueish color. Also, set its Self-Illumination parameter to 100%. (Fig04)

Fig 05

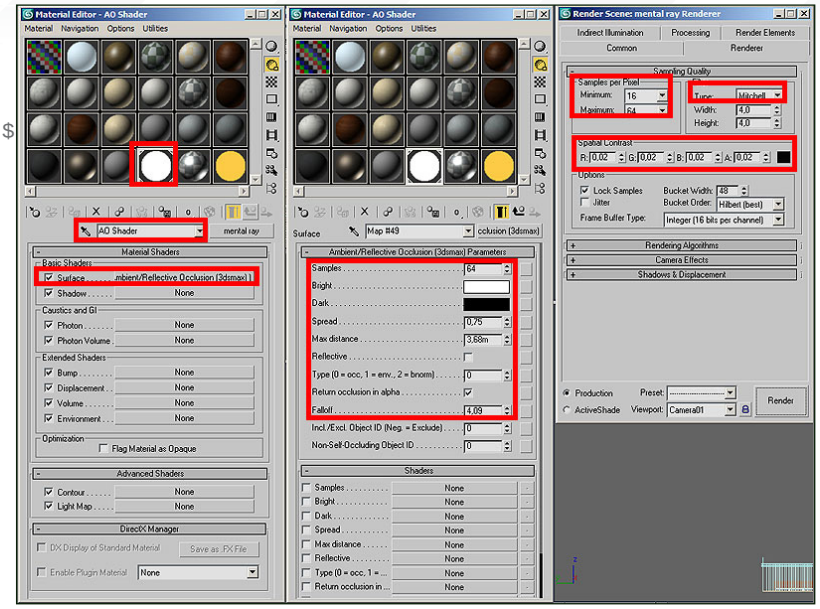
5. Open the Rendering panel again and switch to the Indirect Illumination tab. Enable Final Gather and set its Mutliplier to 10. Also change its color to a nice green. Set the Rays per FG Point to 100 for now (we'll increase it later for W K H ¿ Q D O U H Q G H U L Q J

Fig 06

6. If we render the scene now (Fig06), you'll notice that it's way too bright and greenish. It's because we don't have any "real" light source in the scene, so all the lighting is up to the Final Gather solution we just created.

19. We also need an Ambient Occlusion (AO) pass to enhance the details in the rendering. Open the 3DEnv_Underwater_AO.max scene ¿OH DQG UHIHU WR)LJ WR VHH WKH $ that was created assigned to every object in the scene.

Fig 19

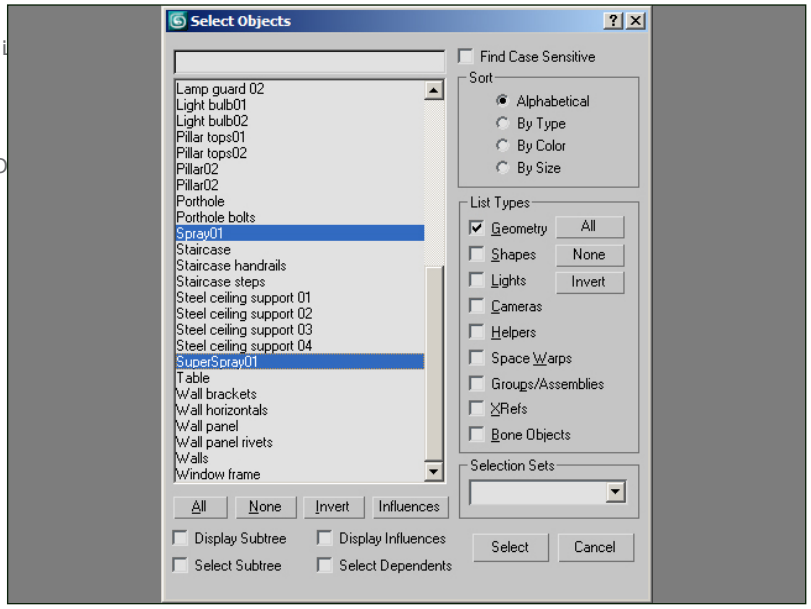


20. Here is the AO Pass rendering. Save this picture, too. We'll composite it later in Photoshop over the original rendering.

Fig 20

21. Lastly, we need one more pass to composite WKH ¿QDO LPDJH :H QHHG VRPH SDUWL bubbles all over the scene, otherwise it won't look like an underwater scene. Open the '(QYB8QGHUZDWHUB3DUWLFOHV PD[¿O scene a pure black color material was assigned to everything (just like before with the Volume pass), and some particle systems were created and put here and there in the scene.

Fig 21



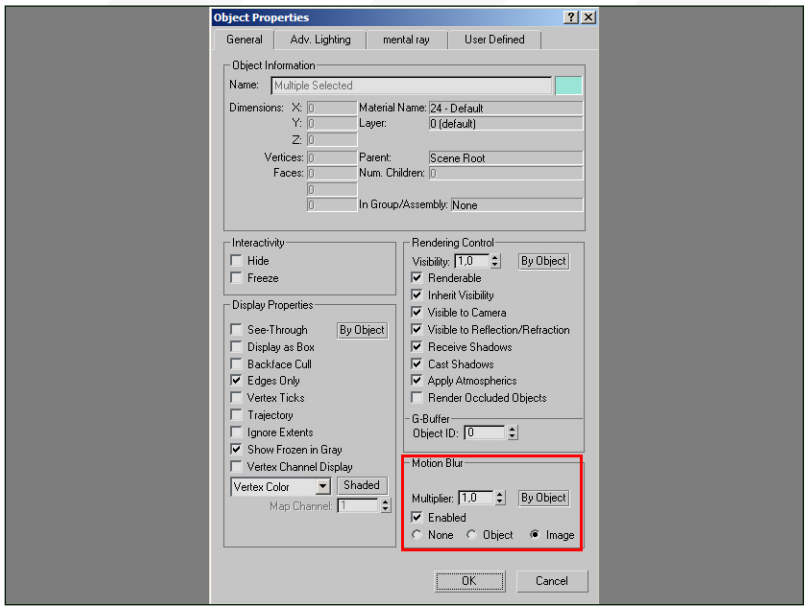


Fig 22

22. If you select the particle systems and open their Object Properties, you will notice that the Motion Blur effect is enabled; this was done to give the bubbles and particles some motion effect, since we're doing a static rendering and not an animation.

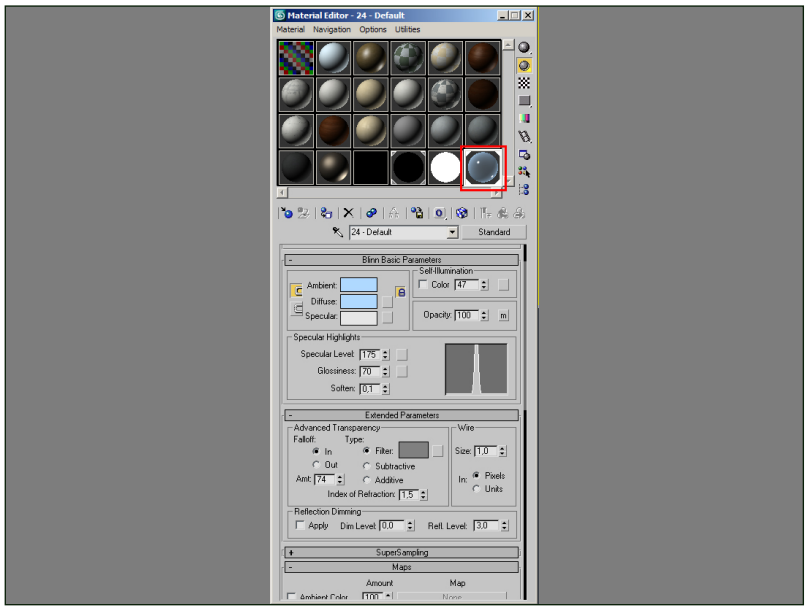


Fig 23

23. You can also check the material that was created and assigned to the particles.

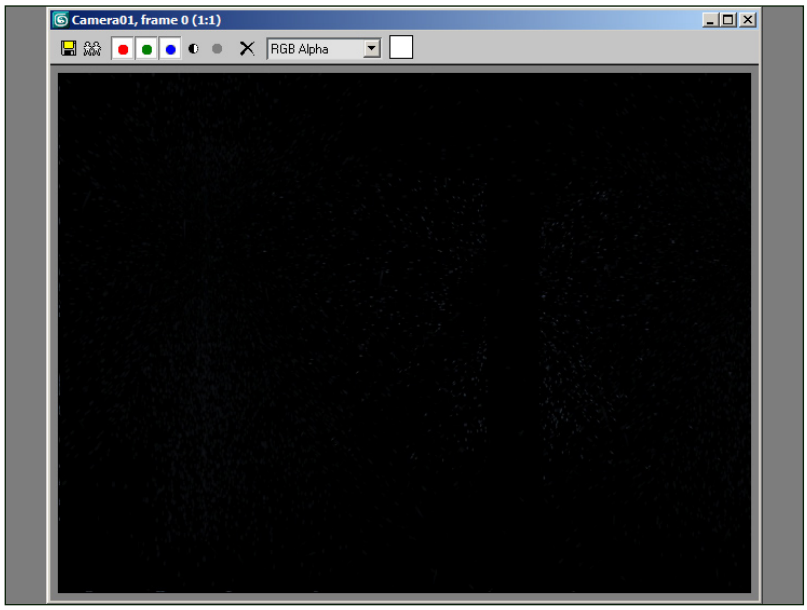
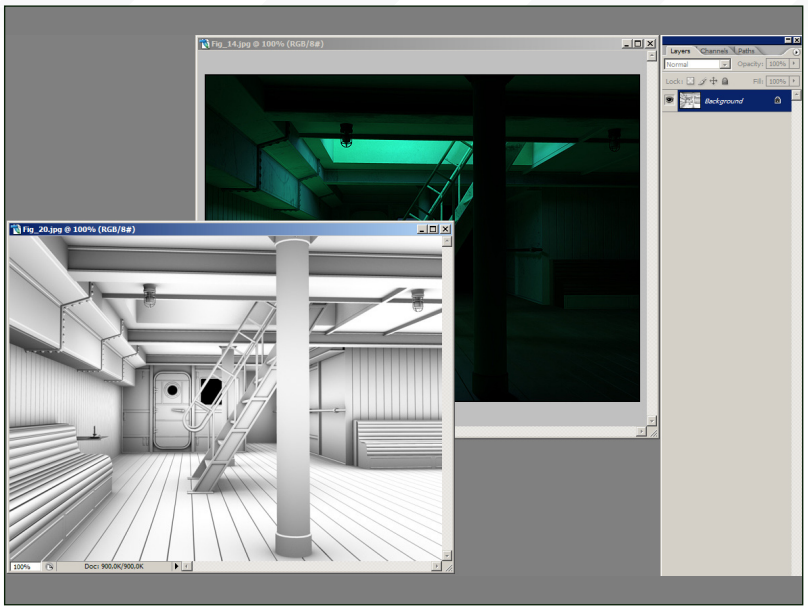


Fig 24

24. Render this last pass and save it as a picture. (Fig24) Now we're ready to composite all the passes together in Photoshop or similar 2D applications.

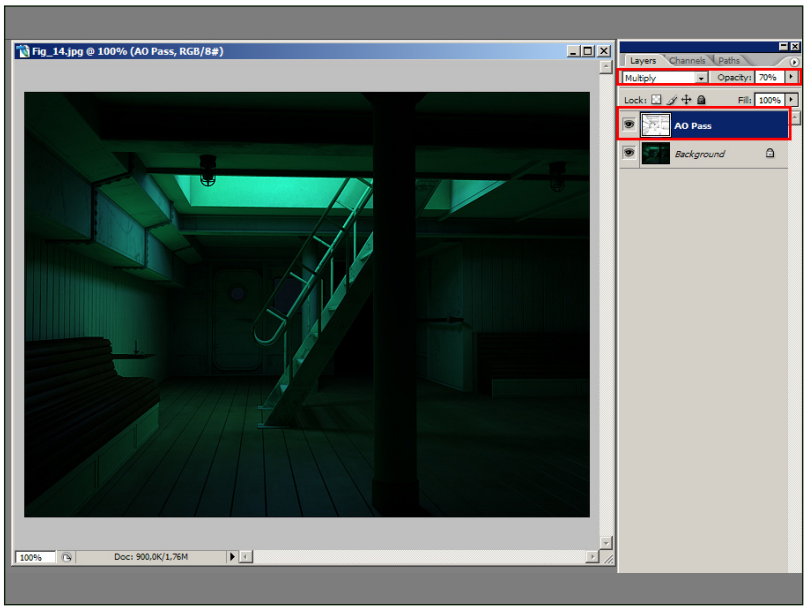
25. Let's start with the AO Pass. Open the original rendering and the AO Pass.

Fig 25



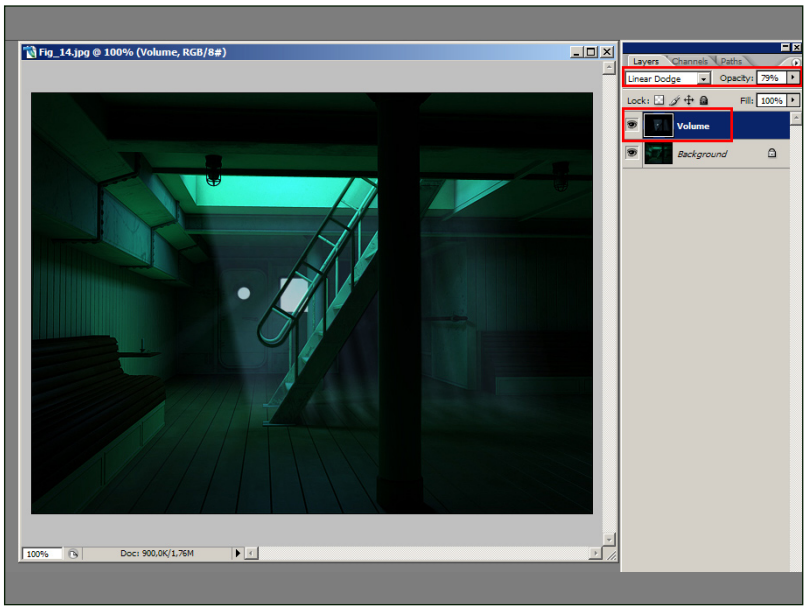
26. Copy the AO Pass and paste it over the original rendering. Change the Blending Mode for the AO Pass to Multiply and set its Opacity value to 70. (Fig26)

Fig 26



27. Flatten the two layers together. Import the Volume pass and paste it over the Background layer. (Fig27). Change the Blending Mode to Linear Dodge and set the Opacity value to 79%.

Fig 27



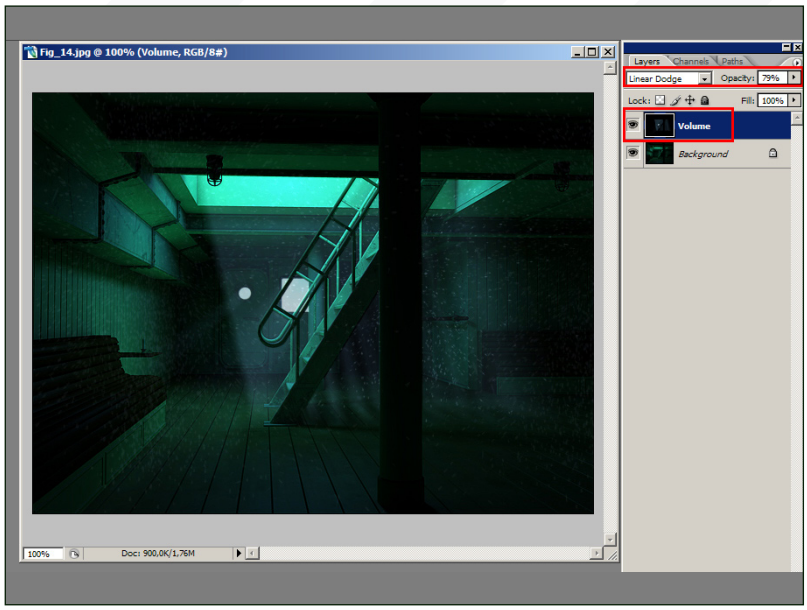


Fig 28

28. Flatten the layers again. Import the Particles pass and paste it over the Background layer. Change the Blending mode to Linear Dodge and change its opacity until you're happy with the result. You can make the bubbles and particles more or less evident; it's really up to you.

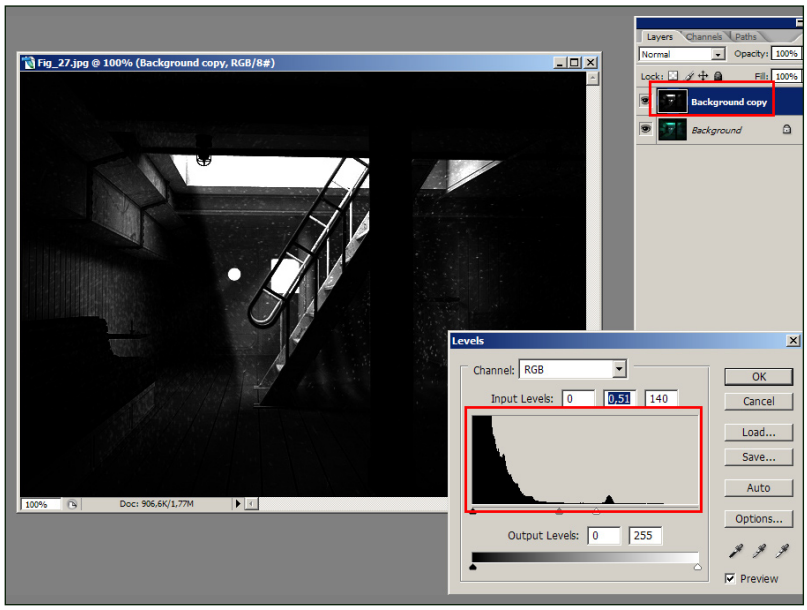


Fig 29

29. Flatten everything once again, and create a copy of the Background layer. Desaturate it and use the Levels tools to adjust its levels like shown in Fig29.

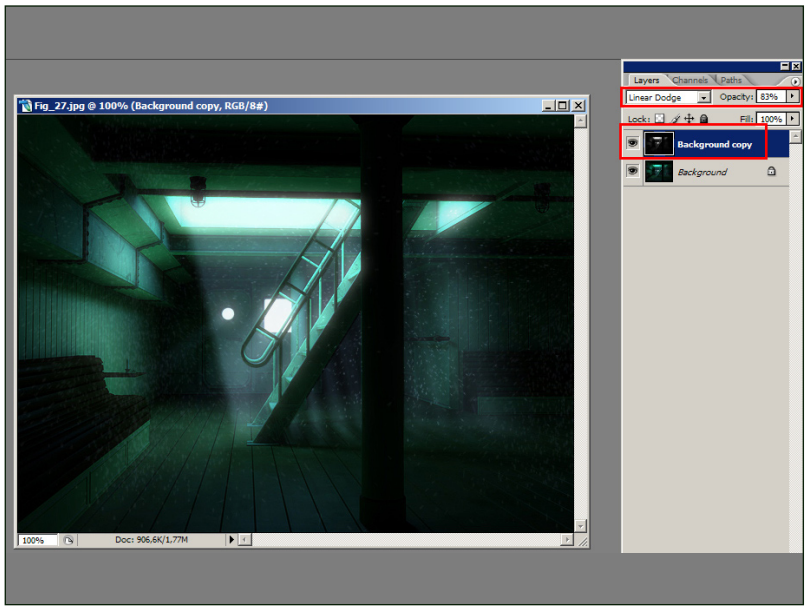
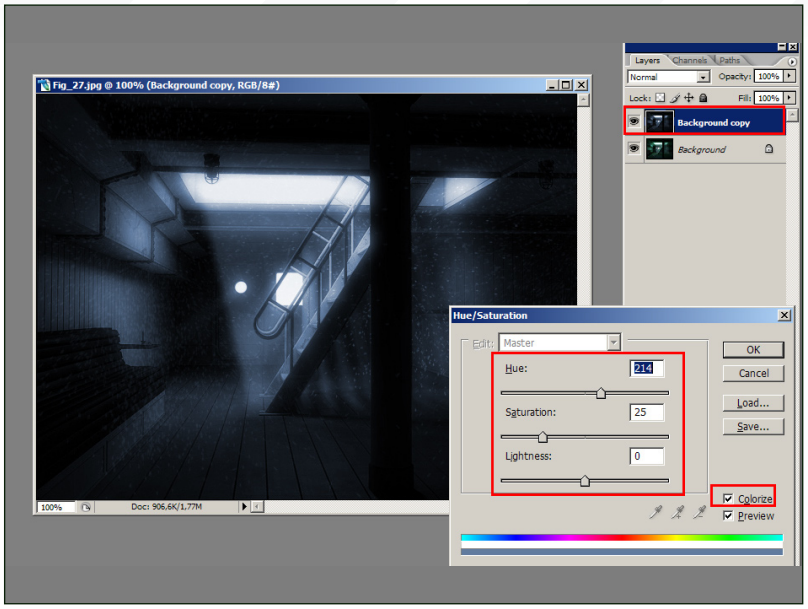


Fig 30

30 .Apply a fair amount of Gaussian Blur to the top layer and change the Blending Mode to Linear Dodge. Also change the Opacity value to 83%.

31. You can also colorize the top layer with a blue colour.

Fig 31



32. Finally, use the Exposure tool to enhance the exposure of the picture (Fig 32).

This concludes our environmental lighting series. I hope you found it of some use.

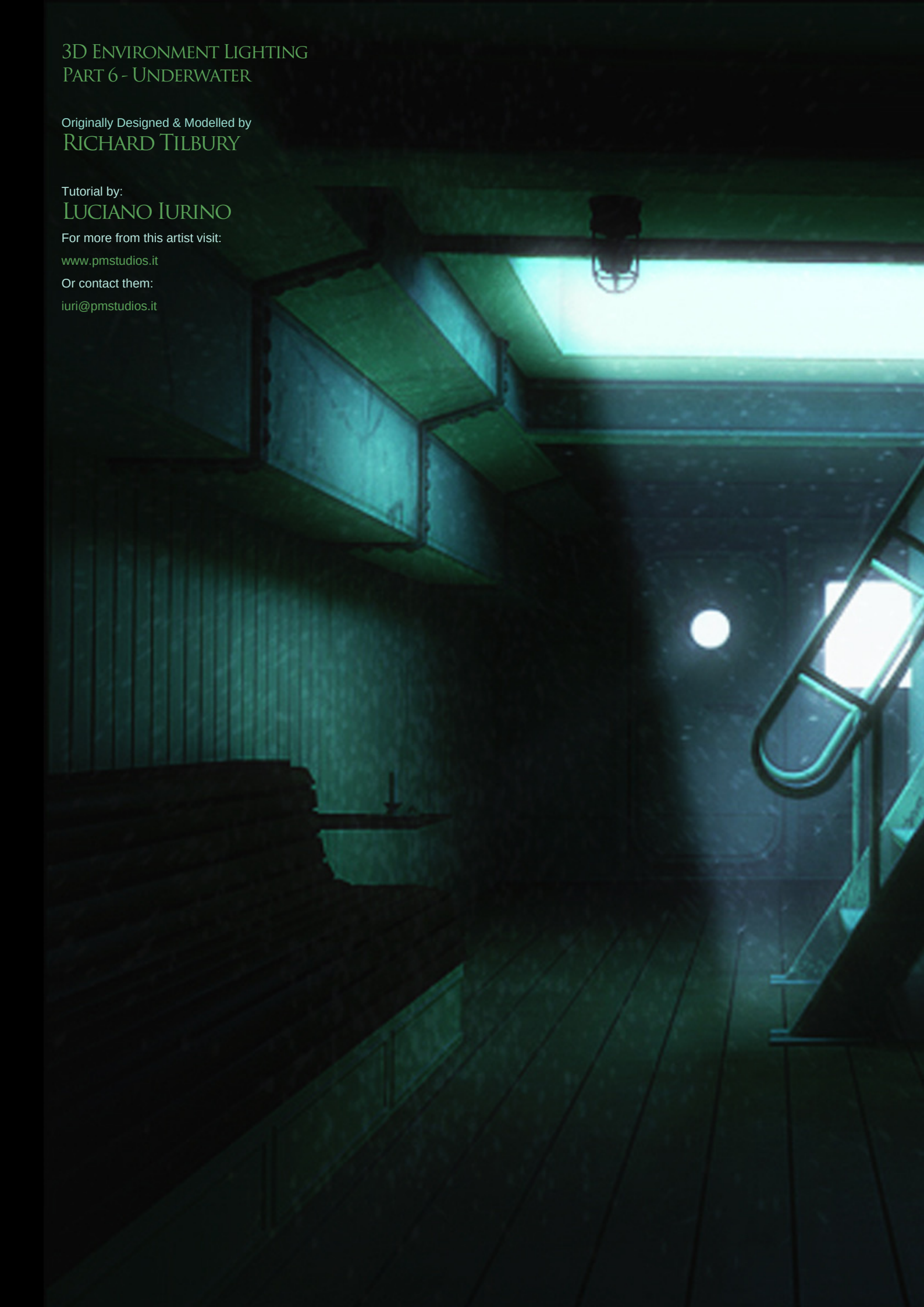
Fig 32

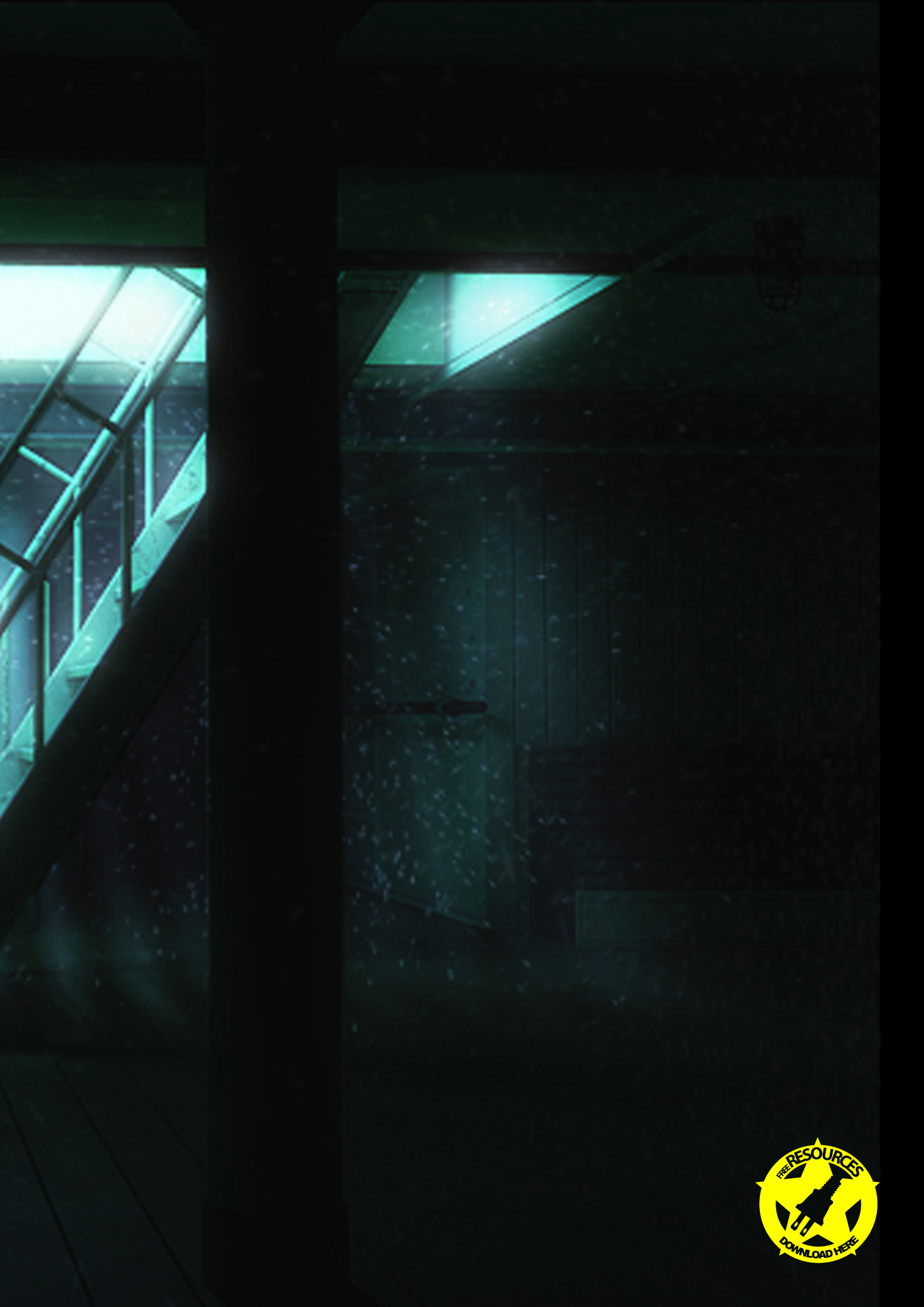
3D Environment Lighting
Part 6 - Underwater

Originally Designed & Modelled by
Richard Tilbury

Tutorial by:
Luciano Iurino

For more from this artist visit:
www.pmstudios.it
Or contact them:
iuri@pmstudios.it

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